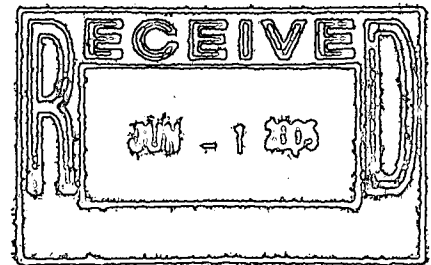


**Closeout Report  
for IHSS Group 700-3**

**Volume I**

**UBC 701, IHSS 700-118.1, IHSS 700-118.2, IHSS 700-131,  
IHSS 700-132, IHSS 700-144(N), IHSS 700-144(S),  
IHSS 700-150.2(S), IHSS 700-150.4, IHSS 700-150.7,  
PAC 700-1100, PAC 700-1116, and  
Portion of IHSS 000-121, including Tanks T-9 and T-10**



**ADMIN RECORD**

**May 2005**

1/147

IA-A-002638

**Closeout Report  
for IHSS Group 700-3**

**Volume 1**

**UBC 701, IHSS 700-118.1, IHSS 700-118.2, IHSS 700-131,  
IHSS 700-132, IHSS 700-144(N), IHSS 700-144(S),  
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PAC 700-1100, PAC 700-1116, and  
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Approval received from the Colorado Department of Public Health and Environment  
(April 19, 2005).

Approval letter contained in the Administrative Record.

**May 2005**

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- Appendix A – Project Photographs
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#### ENCLOSURE

Compact Disc of Accelerated Action Data



## ACRONYMS AND ABBREVIATIONS

AAESE	Accelerated Action Ecological Screening Evaluation
AL	action level
AR	Administrative Record
bgs	below ground surface
BZ	Buffer Zone
CAS	Chemical Abstracts Service
CD	compact disc
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm <sup>2</sup>	square centimeter
COC	contaminant of concern
cpm	counts per minute
CRA	Comprehensive Risk Assessment
cy	cubic yard
DOE	U.S. Department of Energy
dpm	disintegrations per minute
DQA	Data Quality Assessment
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ER RSOP	Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation
ft	foot
ft <sup>2</sup>	square foot
HPGe	high-purity germanium
HRC®	Hydrogen Release Compound®
HRR	Historical Release Report
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IABZSAP	Industrial Area and Buffer Zone Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
K-H	Kaiser-Hill Company, L.L.C.
LCS	laboratory control sample
LLMW	low-level radioactive mixed waste
LLW	low-level radioactive waste
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
MDL	method detection limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate

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## ACRONYMS AND ABBREVIATIONS

NA	not applicable
NaI	sodium iodide
NFAA	No Further Accelerated Action
NLR	no longer representative
OPWL	Original Process Waste Lines
OU	Operable Unit
PAC	Potential Area of Concern
PAH	Polycyclic aromatic hydrocarbon
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
PCB	polychlorinated biphenyl
PCE	perchloroethene
pCi/g	picocuries per gram
PCOC	potential contaminant of concern
POE	Point of Evaluation
PVC	polyvinyl chloride
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS or Site	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RL	reporting limit
RPD	relative percent difference
RSOP	RFCA Standard Operating Protocol
SAP	Sampling and Analysis Plan
SBD	sample beginning depth
SED	sample ending depth
SOR	sum of ratios
SSRS	Subsurface Soil Risk Screen
SVOC	semivolatile organic compound
SWD	Soil Water Database
TCE	trichloroethene
TPH	total petroleum hydrocarbons
UBC	Under Building Contamination
V&V	verification and validation
VOC	volatile organic compound
WEMS	Waste and Environmental Management System
WRW	wildlife refuge worker

## EXECUTIVE SUMMARY

This report summarizes accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-3, located at the Rocky Flats Environmental Technology Site (RFETS or Site), Golden, Colorado. IHSS Group 700-3 consists of the following Under Building Contamination (UBC) Sites, IHSSs, and Potential Areas of Concern (PACs):

- UBC 701 - Waste Treatment Research and Development;
- UBC 776 - Original plutonium Foundry;
- UBC 777 - General plutonium Research and Development;
- UBC 778 - Plant Laundry Facility;
- IHSS 700-118.1 - Solvent Spills West of Building 730;
- IHSS 700-118.2 - Solvent Spills North of Building 707;
- IHSS 700-131 - Radioactive Site 700 Area No. 1;
- IHSS 700-132 - Radioactive Site 700 Area, Site #4 (also Tanks T-9 and T-10);
- IHSS 700-144(N) - Sewer Line Overflow;
- IHSS 700-144(S) - Sewer Line Overflow;
- IHSS 700-150.2(S) - Radioactive Site West of Buildings 771/776;
- IHSS 700-150.4 - Radioactive Site Northwest of Building 750;
- IHSS 700-150.7 - Radioactive Site South of Building 776;
- PAC 700-1100 - French Drain North of Buildings 776/777;
- PAC 700-1116 - Transformer Leak South of Building 776;
- IHSS 000-121 - Tank T-9 (One 22,500-Gallon and One 4,500 Gallon Concrete Laundry Tanks);
- IHSS 000-121 - Tank T-10 (One 22,500-Gallon and One 4,500 Gallon Process Waste Tanks); and
- IHSS 000-121 - Tank T-18 (Concrete Laundry Waste Lift Sump).

This report discusses a portion of the Original Process Waste Lines (OPWL) north of Building 777; however, OPWL will be addressed in the IHSS 000-2 Closeout Report. This report does not address UBC 776, UBC 777, UBC 778, or Tank T-18. These sites will be addressed in the IHSS Group 700-3 Closeout Report, Volume II.

Accelerated action activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP), IASAP Addendum #IA-03-04, the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) Modification 1, and ER RSOP Notification #04-04. Activities were conducted between May 2003 and December 2004, and included soil characterization and removal activities. Building 730, Tanks T-9 and T-10, solvent-contaminated soil, and waste lines in the area were removed. A portion of the Building 730 slab (approximately 23 ft x 35 ft) remains at approximately 25 ft below grade. The Building 701 slab was also removed, as well as the radioactive hot spot under the slab and the fuel-oil line and oil-stained soil adjacent to the slab. In addition, OPWL, one valve vault, and radiologically contaminated soil north of Building 777 were removed. The ends of remaining lines were grouted. All excavations were backfilled, and remediated areas were graded. Final grading and reseedling will occur after the 776, 777 and 778 UBC projects have been completed and the railroad spur has been removed.

Residual contaminant concentrations in surface and subsurface soil are less than RFCA wildlife refuge worker (WRW) action levels (ALs), with four subsurface exceptions. In addition, concentrations of volatile organic compounds (VOCs) in subsurface soil within IHSSs 118.1 and 132 may exceed WRW ALs at depths greater than 20 ft. These exceptions were evaluated using the RFCA Subsurface Soil Risk Screen (SSRS), and based on the evaluation, it was determined that no additional soil removal was necessary. In addition, Hydrogen Release Compound® was added during backfilling of the IHSS 118.1 excavation to reduce residual VOC contamination in subsurface soil. Results of the Data Quality Assessment confirm that the data collected and used are adequate for decision making.

No Further Accelerated Action (NFAA) is warranted for soil at the IHSS Group 700-3 sites (excluding UBCs 776, 777 and 778 and Tank T-18). All ER RSOP accelerated action goals and objectives were achieved. Removal activities conducted contributed to the protection of human health and the environment by removing potential sources of contamination. Best management practices were used during removal activities to minimize the potential spread of contamination. The removal activities minimized the need for short- and long-term institutional and engineering controls.

No IHSS Group-specific, near-term or long-term management techniques are required because of environmental conditions. Site access and excavation within the IHSS Group will continue to be controlled pending implementation of long-term controls. Controls that will be used as appropriate include prohibitions on construction of buildings in the IA, restrictions on excavation or other soil disturbance, and prohibitions on groundwater pumping.

The presence of residual radionuclides, metals, VOCs, and semivolatile organic compounds in soil will be evaluated in the Sitewide Comprehensive Risk Assessment (CRA), which is part of the Remedial Investigation/Feasibility Study (RI/FS) that will be conducted for the Site. Potential ecological risk will be evaluated in the Accelerated Action Ecological Screening Evaluation and the ecological risk assessment portion of the CRA. The need for and extent of any more general, long-term stewardship activities will also be evaluated in the RI/FS. Institutional controls and other long-term stewardship requirements for the Site will ultimately be contained in the Corrective Action Decision/Record of Decision.

This Closeout Report and associated documentation will be retained as part of the Rocky Flats Administrative Record file. Approval of this Closeout Report constitutes regulatory agency concurrence that this IHSS Group (excluding UBCs 776, 777 and 778 and Tank T-18) is an NFAA site. An NFAA decision is justified based on the following:

- Soil characterization and confirmation data;
- Results of the Subsurface SSRS; and
- The stewardship evaluation.

This information and NFAA determination will be documented in the Fiscal Year 2005 Historical Release Report.

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## 1.0 INTRODUCTION

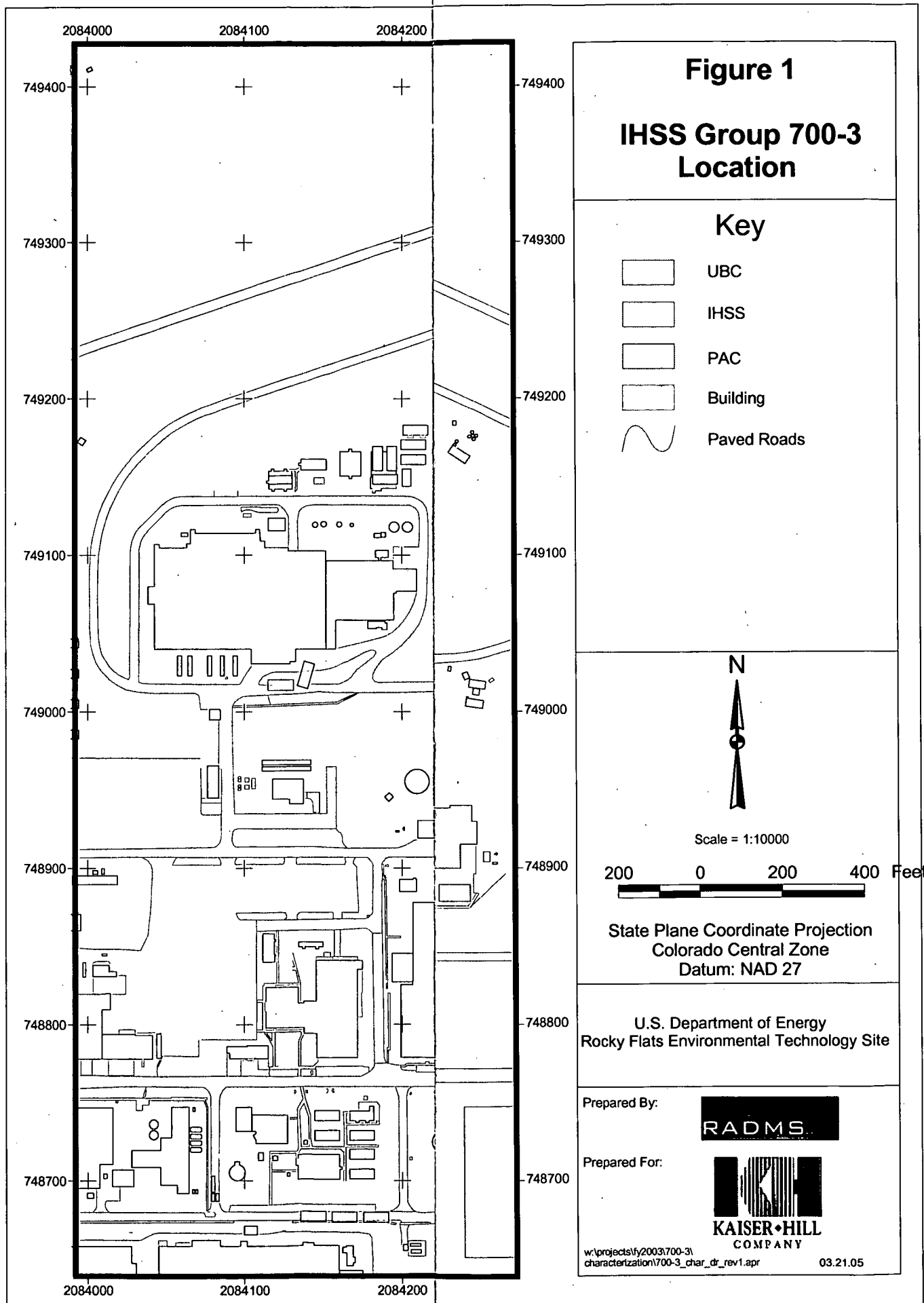
This Closeout Report summarizes accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-3 at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado. Under Building Contamination (UBC) Sites, IHSSs, and Potential Areas of Concern (PACs) within IHSS Group 700-3 are listed in Table 1. Sites addressed in this report are shown in bold. This report also discusses a portion of the Original Process Waste Lines (OPWL) (IHSS 121) north of Building 777. This report does not address UBC 776, UBC 777, UBC 778, or Tank T-18. These sites will be addressed in the IHSS Group 700-3 Closeout Report, Volume II. IHSS Group 700-3 sites addressed in Volumes I and II are also shown on Figure 1.

**Table 1**  
**IHSS Group 700-3 Sites**

<b>UBC 701 - Waste Treatment Research and Development</b>
UBC 776 - Original plutonium Foundry
UBC 777 - General plutonium Research and Development
UBC 778 - Plant Laundry Facility
<b>IHSS 700-118.1 - Solvent Spills West of Building 730</b>
<b>IHSS 700-118.2 - Solvent Spills North of Building 707</b>
<b>IHSS 700-131 - Radioactive Site 700 Area No. 1</b>
<b>IHSS 700-132 - Radioactive Site 700 Area, Site #4 (Tanks T-9 and T-10)</b>
<b>IHSS 700-144(N) - Sewer Line Overflow</b>
<b>IHSS 700-144(S) - Sewer Line Overflow</b>
<b>IHSS 700-150.2(S) - Radioactive Site West of Buildings 771/776</b>
<b>IHSS 700-150.4 - Radioactive Site Northwest of Building 750</b>
<b>IHSS 700-150.7 - Radioactive Site South of Building 776</b>
<b>PAC 700-1100 - French Drain North of Buildings 776/777</b>
<b>PAC 700-1116 - Transformer Leak South of Building 776</b>
<b>IHSS 000-121 - Tank T-9 (One 22,500-Gallon and One 4,500 Gallon Concrete Laundry Tanks)</b>
<b>IHSS 000-121 - Tank T-10 (One 22,500-Gallon and One 4,500 Gallon Process Waste Tanks)</b>
<b>IHSS 000-121 - Tank T-18 (Concrete Laundry Waste Lift Sump)</b>

Accelerated action activities were planned and conducted in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001), the IA and Buffer Zone (BZ) SAP (IABZSAP) (DOE 2004a), IASAP Addendum #IA-03-04 (DOE 2003a), and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) Modification 1 (DOE 2003b). Notification of the planned activities was provided in ER RSOP Notification #04-04 (DOE 2004b), which was approved by the Colorado Department of Public Health and Environment (CDPHE) on July 9, 2004 (CDPHE 2004).

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This closeout report includes the following:

- Historical and general site information;
- Deviations from IASAP Addendum #IA-03-04 (DOE 2003a) sampling specifications;
- Accelerated action characterization data presented in tables and shown on maps;
- Sums of ratios (SORs) and summary statistics for accelerated action characterization data;
- Evaluation of historical and accelerated action characterization data greater than wildlife refuge worker (WRW) action levels (ALs);
- Remedial action objectives and accelerated action goals;
- Description of accelerated action remediation and map of remediated areas, including excavation boundaries and confirmation sampling results;
- Description of current site conditions, including residual soil contamination;
- Subsurface Soil Risk Screen (SSRS) and stewardship evaluation;
- Deviations from the ER RSOP;
- Table of no longer representative (NLR) sampling locations;
- Disposition of waste and site reclamation;
- Data Quality Assessment (DQA);
- Conclusions and reasons supporting a No Further Accelerated Action (NFAA) determination for IHSS Group 700-3;
- References, correspondence and contact records, and project photographs; and
- A compact disc (CD) containing the accelerated action data set for the project. The data are divided into two files, one containing real data and one containing quality control (QC) data, and are presented in a standardized format.

Approval of this Closeout Report constitutes regulatory agency concurrence with the NFAA designation proposed for IHSS Group 700-3 (excluding UBCs 776, 777 and 778 and Tank T-18). Accelerated action activities and the NFAA determination will be documented in the 2005 Annual Update of the Historical Release Report (HRR). This Closeout Report and associated documentation will be retained in the RFETS Administrative Record (AR).

## **2.0 SITE CHARACTERIZATION**

IHSS Group 700-3 characterization information consists of historical knowledge and analytical data. Historical information for the IHSS Group was derived from previous studies (DOE 1992-2004, 1994, 2000, 2001, 2003a) and is summarized in Section 2.1. Analytical data for IHSS Group 700-3 (pre-accelerated action and accelerated action data) are summarized in Sections 2.2 and 2.3, respectively. A compact disc (CD) that contains the accelerated action data set, including real and QC data, is enclosed with this report.

### **2.1 Historical Information**

Historical information on the 14 sites addressed in this Closeout Report is presented below.

## **UBC 701, Waste Treatment Research and Development**

Built in 1962, Building 701 was a research and design facility used to design, build, and evaluate bench-scale waste treatment processes. The main purpose of the research and design group located in this building was to change the form of waste materials for off-site disposal. Information from the waste treatment research and design projects was applied to waste treatment processes throughout the Site. All process evaluations conducted in Building 701 were conducted using nonradioactive materials; once the processes were transferred to the production and waste treatment facilities, they were applied to radioactive waste. Treatment technologies evaluated included the following:

- Rotary-kiln incineration;
- Fluidized-bed incineration;
- Cementation of process waste and pond sludge;
- Thin-film evaporation; and
- Vitrification.

Building 701 was also used for waste storage, including storage of radioactive waste.

## **IHSS 700-118.1, Solvent Spills West of Building 730**

A 5,000-gallon underground carbon tetrachloride storage tank was located adjacent to the western side of Building 730. This underground tank had its long axis running north-south, with the southern end exposed in a valve pit. The northern end of the tank was buried directly in soil. The base of the tank was approximately 9.1 feet (ft) below grade, and the base of the valve pit was approximately 10.25 ft below grade.

In the 1970s, tank overflows occurred during filling operations. No documentation was found that detailed the response to spills that occurred during filling operations in the 1970s. Persons interviewed recalled a spill of 100 to 200 gallons of trichloroethene (TCE) north of Building 776 prior to 1970 but did not recall any cleanup operations. It has been postulated that this spill was carbon tetrachloride.

In March 1976, a small amount of leakage from the pipes in the tank pit was evident. The Industrial Hygiene group staff reported air samples were typically averaging 10 milligrams per liter (mg/L) carbon tetrachloride. During the month prior to April 15, 1976, the average concentration increased to almost 2,000 mg/L. It was postulated that the tank or its associated pipes in the sump released the carbon tetrachloride into the ground. In winter and spring 1976, there were efforts to stop the leakage from the pipes. Documentation was found that detailed the cleanup of spilled liquid, including that pumped onto the ground.

On June 18, 1981, the tank failed, releasing carbon tetrachloride into the sump. The sump pumped some of the liquid out onto the ground surface. Temporary storage tanks were to be installed to collect the liquid. No documentation was found that details the actual use of the temporary storage tanks. The tank was removed following its failure in 1981. One Building 776 employee present at the time of the tank's removal recalled that it appeared sound with no obvious leaks or significant corrosion.

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### **IHSS 700-118.2, Solvent Spills North of Building 707**

IHSS 700-118.2 is a 30 ft x 30 ft area associated with a 5,000-gallon aboveground carbon tetrachloride tank located adjacent to the northern side of Building 707, in the alleyway between Building 707 and Building 778. In addition to carbon tetrachloride, the tank may have held various degreasing solvents, including petroleum distillates, benzene and dichloromethane paint thinner, 1,1,1-trichloroethane, and methyl ethyl ketone.

Numerous releases occurred during routine filling operations. The most significant release occurred in June 1981 when the tank ruptured and released an unknown quantity of carbon tetrachloride to the environment. The tank and the area of the spill were subsequently cleaned up. However, no documentation has been found to support any sampling and analysis conducted to verify the complete removal of contaminated soil. A soil gas survey conducted during the Operable Unit (OU) 8 Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) indicated carbon tetrachloride, perchloroethene (PCE), toluene, TCE, chloroform, benzene, and chloromethane concentrations exceeded 1.0 microgram per liter ( $\mu\text{g/L}$ ).

### **IHSS 700-131, Radioactive Site 700 Area No. 1**

In June 1964, an explosion in Building 776 resulted in the release of plutonium. One account claimed that an area approximately 1,500 square feet ( $\text{ft}^2$ ) adjacent to the Building 776 gas-bottle dock was affected (western end of the northern side of Building 776). Radiological surveys showed activities exceeding 300,000 disintegrations per minute (dpm)/100 square centimeters ( $\text{cm}^2$ ). A later account claimed that an area of approximately 40  $\text{ft}^2$  north of Building 776 was affected. Soil from the area with the highest counts was removed, and a seal coat of oil and approximately 2 inches of gravel were put in its place.

Approximately 2,000  $\text{ft}^2$  on the western end of the northern side of Building 776 was affected by the release of plutonium as a result of fire fighting after the explosion. Radiological surveys detected plutonium contamination along three northern exterior walls of Building 776. Plutonium was tracked out of Door 17 (center of northern side of Building 776) by the firefighters during the blaze. To reduce mobility of the contaminated soil, the area around Door 17 was paved twice with asphalt. In fall 1971, the asphalt was removed and placed in barrels. New asphalt was later placed in the area of Door 17.

High-purity germanium (HPGe) surveys conducted during the OU 14 Phase I RFI/RI did not indicate elevated activities of radionuclides. Sodium iodide (NaI) surveys indicated that radionuclides exceeded background in the northwestern corner, and south-central and north-central portions of the IHSS. Surface soil samples indicated that arsenic, beryllium, chromium, copper, mercury, zinc, americium-241, plutonium-239/240, and uranium-238 exceeded background values. Benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected in surface soil samples.

## **IHSS 700-144(N), Sewer Line Overflow, and IHSS 700-144(S), Sewer Line Overflow**

IHSS 700-144 was originally defined as a 10- by 10-ft area between Buildings 777 and 779. Based on information obtained during development of the OU 8 Phase I RFI/RI Work Plan, IHSS 144 was divided into two separate sites: IHSS 700-144(N) and IHSS 700-144(S). IHSS 700-144(N) is approximately 25 ft x 70 ft and located adjacent and east of Building 730. IHSS 700-144(S) is approximately 15 ft x 170 ft and located in between Buildings 777 and 779. Both IHSSs are associated with the release of radioactive laundry wastewater during transfer of wastewater from the laundry waste holding tanks, which were located beneath the Building 730 pump house, to the sanitary sewer system. The contaminated area east of Building 701 was designated as IHSS 144(N), and the area between Buildings 777 and 779 was designated as IHSS 144(S).

The Building 730 pump house was located north of Building 776 and east of Building 701. The Building 776 laundry wastewater was stored in two 22,500-gallon concrete underground tanks, designated as Tanks 776A and 776B. The tanks were collocated with two 4,500-gallon concrete process waste holding tanks, designated as Tanks 776C and 776D. The four tanks were designed so that if Tanks 776C and 776D overflowed, the excess material could drain into Tanks 776A and 776B, and vice versa. (Tanks 776A and 776C are also known as Tank 9, and Tanks 776B and 776 D are also known as Tanks 10.) Although no documentation was found that shows this situation ever occurred, it is possible that the release of laundry wastewater could have included constituents of the process waste tanks.

All four tanks were taken out of service; however, the date of this is unclear. The OU 8 Phase I RFI/RI Work Plan states that the tanks were taken out of service in the 1980s and the laundry waste tanks were converted to firewater plenum deluge tanks. A 1977 engineering drawing, drawing number 25845-X065 (exact date and title illegible on copy), denotes that the four tanks were to be decontaminated and the laundry waste tanks converted to two-stage plenum firewater storage. It is not known whether the decontamination and conversion of the tanks occurred in the late 1970s or early 1980s.

The three discharge pipes from the laundry waste tanks (two OPWL lines and one sanitary sewer line) exited Building 730 on the northern side. The pipes then ran east to the southern side of Building 702. From there, the sewer line ran south and tied into another sewer line at the northern side of the Building 777 addition. This line ran east along the northern wall of Building 777, then turned south and ran through the alley between Buildings 777 and 779.

On approximately June 1, 1972, the Building 776 radiography vault floor drain remodel was completed. Apparently, previous transfers of laundry wastewater from Tanks 776A and 776B resulted in backflow into the vault. The floor drain remodel allowed the laundry waste to be transferred at higher pressures.

On June 7 or 8, 1972, the increased pumping rate during a transfer of laundry wastewater from the tanks to Building 995 caused suspension of high-level radioactive sediment in the tanks and pressurization of the sewer line. The pressurization of the line caused a toilet and sink in Building 701 to overflow, and the sanitary sewer line east of the tanks to rupture. Because of the overflow of the toilet and sink, the toilet, sink, and floor of Building 701, as well as the ground

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*Preliminary Review Draft for Interagency Discussion/Not Issued for Public Comment*

east of the building, were contaminated. The line section that ruptured was apparently located between Buildings 777 and 779. The HRR (DOE 1992) states that the pressurization of the transfer line also caused sanitary waste to back up and overflow at a clean-out plug near Building 701. The location of the rupture in the sanitary sewer line is unclear. Persons interviewed recalled a break in the sewer line between Buildings 777 and 779. The HRR stated that this location is suspect because no documentation was found to support that location. Additionally, the sewer line between Buildings 777 and 779 was constructed of polyvinyl chloride (PVC) pipe and was relatively new (installed in approximately 1968). The original sanitary sewer pipe, between Buildings 730 and 702, was constructed of vitrified clay and installed in the late 1950s. It seems likely that the rupture would have occurred in the older section of vitrified clay pipe as opposed to the newer PVC pipe. Also, the HRR states that approximately 50 drums of contaminated soil were removed from "east of the holding tanks." A conflicting document states that 38 drums of soil were removed. This information seems to support the probability that the sewer line rupture occurred in the older vitrified clay pipe.

The contaminated soil around Building 701 was also apparently removed. As of June 8, 1972, 19 drums of soil had been removed. According to an employee logbook, no radioactivity was detected at that time. This information seems to also support the probability that the sewer line rupture occurred in the older vitrified clay pipe.

The radiometric survey performed in the late 1970s and early 1980s did not indicate areas above 500,000 picocuries per gram (pCi/g) near the IHSS.

Soil gas and surface soil samples were collected from IHSS 700-144(N) and analyzed during the OU 8 Phase I RFI/RI. Carbon tetrachloride was present at a concentration of 3.2 µg/L at one soil gas location. Benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz-(a,h)anthracene, and indeno(1,2,3-cd) pyrene were also detected. Concentrations of antimony, calcium, chromium, copper, lead, magnesium, silver, zinc, americium-240, and plutonium-239/240 exceeded background values. Surface soil samples collected from IHSS 700-144(S) indicated plutonium-239/240 activities exceeded background values.

#### **IHSS 700-150.2(S), Radioactive Site West of Buildings 771 and 776**

IHSS 700-150.2 was originally defined as a 70-ft by 250-ft area west of Building 771. Subsequent information obtained for the Final OU 8 Phase I RFI/RI Work Plan indicates that IHSS 700-150.2 should be divided into two separate areas. The northern portion is located adjacent to the western side of Building 771. The southern portion is located adjacent to the western side of Building 776 and extends south to the northwestern corner of Building 778.

IHSS 700-150.2 is associated with radiological contamination that resulted from the two major industrial fires that occurred at RFETS: the September 11, 1957, fire in Building 771 and the May 11, 1969, fire in Buildings 776 and 777.

Oil and gravel were placed on areas of contaminated soil to stabilize the contamination. The soil, oil, and gravel were removed on July 19, 1969. At least a portion of the sidewalk on the western side of Building 776 was also removed. A new asphalt road had been constructed on top of the affected area by the end of July 1969.

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Surveys of the area just south of Door 6, in the northern half of the western side of the building, encountered contamination between 100 and 300 micrograms per square meter. Documentation also indicates that the steps, dock, and ramp areas on the western side of Building 776 were contaminated to 6,000 counts per minute (cpm). In May 1971, contaminated steps, dock, and ramp areas on the western side of Building 776 were covered with epoxy paint. Areas of contamination outside Building 776 were covered with asphalt.

In January 1972, the soil at the southwestern corner of Building 776 was considered contaminated. The cause of the contamination was not stated.

In 1973, a survey was conducted on the asphalt road west of Building 776 to determine contamination levels prior to widening the road. The maximum soil activity found was 70 dpm per gram plutonium.

In June 1980, contaminated asphalt was removed from the western side of Building 776 and boxed as hot waste.

The results of the radiometric survey, performed at Rocky Flats during the late 1970s and early 1980s, indicated no extremely contaminated areas (500,000 to 1,000,000 pCi/g) around the western sides of Buildings 771 and 776.

#### **IHSS 700-150.4, Radioactive Site Northwest of Building 750**

IHSS 700-150.4 consists of a 20- by 20-ft area around the sump located south of Building 778 outside Door 3 where a leaking processing waste line was discovered in 1981. The leak was repaired. Specific isotopic analyses indicated 900 picocuries per liter uranium and no plutonium. Whether the analyses were performed on soil or water was not specified. No documentation regarding soil removal or other cleanup activities was found.

Surface soil samples collected during the OU 8 RFI/RI indicated that concentrations/activities of sodium, uranium-235, and uranium-238 exceeded background values. These data are available in the IA Data Summary Report (DOE 2000).

#### **IHSS 700-150.7, Radioactive Site South of Building 776**

IHSS 700-150.7 consists of an area between Buildings 776/777 and 778, and an area between Buildings 778 and 707. Plutonium was tracked in these areas when fire fighting and support personnel responded to the fire that occurred in Buildings 776 and 777 on May 11, 1969. The spread of contamination south of Buildings 776 and 777 can also be attributed to the runoff of firewater sprayed on the building to contain the fire. Following the May 1969 fire, rain carried contamination into the soil.

Road oil and gravel were initially placed over the contaminated soil. An asphalt roadway was completed in the area on July 22, 1969. By December 1969, asphalt in the area, contaminated soil, and presumably the road oil and gravel had been removed from between the buildings.

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In 1972, the soil at the southwestern corner of Buildings 776 and 777 was considered contaminated. The levels and source of this contamination are unknown, and it is not known whether it is related to the 1969 fire.

**PAC 700-1100, French Drain North of Buildings 776 and 777**

A french drain, which was in use from approximately 1963 until at least 1972 and then removed, ran north from Door 17 of Building 776, across the alleyway, then east where its effluent leached into the soil. Radioactive contamination in the area of this site is the result of the June 1964 explosion incident in Building 776. The area was again contaminated at the time of the May 1969 fire in Building 776 (IHSS 770-131). This drain may have provided a pathway for the migration of radioactive contamination. Another source indicated the french drain ran north from Door 14 of Building 776 (three doors to the west). Plutonium contamination present in the area of this site as a result of the 1964 and 1969 incidents was possibly redistributed below the ground surface, although no surface expression was noted.

**PAC 700-1116, Transformer Leak South of Building 776**

On January 19, 1998, while conducting a surveillance audit in the 700 Building Area, it was discovered that Transformer T-776-2 was leaking small amounts of dielectric fluid from a weep hole near the bushing/seal area. Additionally, staining of the concrete transformer pad and some of the adjacent rock/soil surrounding the pad was observed.

The transformer went into service in April 1957 and is located within IHSS 700-150.7. It is unclear whether the transformer underwent retrofilling in the late 1980s or at what other locations the transformer was used. The dielectric oil sampled contained Aroclor-1260 at 21 and 23 parts per million. Documents reviewed do not reference the analytical method used, or whether leaks were detected or the soil was sampled.

**OPWL (IHSS 000-121), including Tank T-9 - One 22,500-Gallon and One 4,500 Gallon Concrete Laundry Tanks Two, and Tank T-10 - One 22,500-Gallon and One 4,500 Gallon Process Waste Tanks (area referred to as IHSS 700-132)**

Line P-28/P-29, located north of Building 777, conveyed process wastewater north to Building 774. Leaks are known to have occurred along this line. Very limited information on leaks, their locations, and related responses/corrective actions are available.

Tanks T-9 and T-10 (also known as Tanks 776A/776C and 776B/776D; refer to above discussion on IHSS 700-144[N] and 700-144[S]) were located in the 700 Area within Building 730, which is referred to as the Building 776 Process Waste Pit. These tanks were approximately 50 ft north of Building 776 and approximately 30 ft east of Building 701. Tank T-9 consisted of one 22,500-gallon underground concrete tank and one 4,500-gallon concrete underground storage tank. Tank T-10 consisted of one 22,500-gallon concrete underground tank and one 4,500-gallon concrete underground storage tank. The T-9 tanks were installed in 1955 and were taken out of service in October 1984, at which time both chambers were cleaned, painted, and converted to plenum deluge catch tanks. These tanks originally received laundry waste from Building 778. The T-10 tanks were installed in 1955 and were abandoned in December 1982; however, these

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tanks reportedly were not cleaned when abandoned. Tank T-10 received waste streams from Building 776, Production Support, and Building 778, the Laundry.

Waste streams for both sets of tanks included radionuclides, solvents, metals, and limited amounts of machinery and lubricating oils. Documented releases from Tanks T-9 and T-10 were not found; however, releases from the tanks are considered likely because of their condition. Furthermore, numerous releases were documented from a previously removed underground storage tank adjacent to Building 730 (Tanks T-9 and T-10) that contained solvents such as carbon tetrachloride and possibly PCE. This tank was reportedly located approximately 9.0 to 10.0 ft below grade. (Refer to above discussion on IHSS 700-118.1.)

HPGe surveys conducted during the OU 9 Phase I RFI/RI indicated that americium-241 and plutonium-239/240 activities exceeded background. One NaI location registered levels of 1,687 cpm with background of 1,595 cpm. Activities of americium-241 and plutonium-239/240 were above background, at a depth of 0.0 to 6.0 inches at all borehole locations. Lead and zinc were detected at concentrations greater than background at boreholes located northwest and southwest of the tanks. Groundwater samples from the borehole adjacent to the northwestern corner of the tanks indicated gross alpha, gross beta, americium-241, uranium-233/234, uranium-235, uranium-238, and various metals exceeded background concentrations. Groundwater samples from the borehole adjacent to the southwestern corner of the tanks indicated uranium-233/234, uranium-235, uranium-238, arsenic, and selenium exceeded background. Americium-241 exceeded soil background at a depth of 20.0 to 22.5 ft in the borehole located adjacent to the southeastern corner of the tanks, and carbon tetrachloride was detected at a concentration of 25,000,000 micrograms per kilogram ( $\mu\text{g/kg}$ ). Groundwater samples in the boreholes indicated that americium-241, plutonium-239/240, radium-226, uranium-233/234, uranium-235, uranium-238, aluminum, barium, copper, iron, lead, magnesium, mercury, potassium, sodium, strontium, and zinc exceeded background. Groundwater samples from the borehole located to the northeast indicated americium-241, plutonium-239/240, radium-226, uranium-233/234, uranium-235, uranium-238, calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, mercury, nickel, potassium, sodium, strontium, and zinc exceeded background concentrations.

Sample results from liquid inside both tanks at Tank T-9 indicated positive activity for all radionuclides analyzed for except radium-226. Sample results from liquid inside one of the Tank T-10 tanks indicated positive activity for all radionuclides tested for and elevated concentrations of calcium, copper, lithium, manganese, nickel, strontium, and zinc. Sample results from the other Tank T-10 tank indicated activity for all radionuclides analyzed for, except radium-226 and gross alpha, and elevated concentrations of lithium and zinc.

## 2.2 Pre-Accelerated Action Characterization Data

Historical soil characterization data greater than method detection limits (MDLs) or background means plus two standard deviations (background) are presented on Figures 2 and 3. WRW AL exceedances are shown in red. As shown, there were no contaminant concentrations in surface soil that exceeded WRW ALs. Contaminant concentrations in subsurface soil exceeded WRW ALs at seven locations, all in the vicinity of IHSS 700-118.1. All exceedances were chlorinated solvents, especially carbon tetrachloride, and occurred at depths of 20 ft or greater.

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PAC 700-1102, also referred to as PCB Site #21, is located northwest of Building 776. The Aroclor-1260 concentration in surface soil at Sampling Location PCB-21-1 was 480,000 µg/kg, and the WRW AL is 12,400 µg/kg. However, the site was remediated to a depth of 18 ft, and the surface location is NLR. PAC 700-1102 was subsequently designated as an NFAA site (DOE 2004c).

### 2.3 Accelerated Action Characterization Soil Data

Based on historical information and data, accelerated action characterization needs were identified in IASAP Addendum #IA-03-04 (DOE 2003a), including potential contaminants of concern (PCOCs) and areas requiring further characterization. All sites were to be sampled except for IHSSs 700-144(S), 700-150.4, 700-118.1, and 700-132. According to the IASAP Addendum, IHSSs 700-144(S) and 700-150.4 did not require additional soil sampling. No additional sampling was proposed for IHSSs 700-118.1 and 700-132 because the tanks and adjacent soil were scheduled for removal.

Accelerated action samples were collected and analyzed in accordance with the IASAP Addendum. Project sampling and analysis specifications, including media sampled, depth intervals, and analytes (PCOCs), are presented in Table 2. This includes characterization and confirmation sampling and analysis. Deviations from the IASAP Addendum are also presented and explained in Table 2. A summary of all project sampling and analysis (characterization and confirmation) is presented in Table 3.

Sampling locations and analytical results for IHSS Group 700-3 (excluding UBCs 776, 777 and 778 and Tank 18) are presented on Figures 4 through 7 and in Table 4. Only results greater than background means plus two standard deviations or reporting limits (RLs) are shown. WRW AL exceedances are shown in bold in Table 4 and in red on Figures 4 through 7. Plutonium-239/240 and uranium-234 activities based on HPGe results (derived from americium-241 and uranium-238 gamma spectroscopy results, respectively) are shown in Table 4 in italics. All project data, retrieved from the RFETS Soil Water Database (SWD) on March 21, 2005, are provided on the enclosed CD. The CD contains standardized real and QC data (Chemical Abstracts Service [CAS] numbers, analyte names, and units).

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**Table 2**  
**IHSS Group 700-3 Sampling and Analysis Specifications and Deviations from IASAP Addendum #IA-03-04**

Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
IHSS 150.7	CE44-003	2083642.27	750349.23	2083625.069	750360.802	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; moved 21 ft NW to avoid sanitary line and water lines. No change in depth intervals and analytes. 0.5 ft of asphalt fill.
	CE45-017	2083674.93	750364.37	2083674.821	750367.995	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; moved 4 ft N to avoid sewer line. No change in depth intervals and analytes.
	CF44-000	2083737.04	750358.8	2083736.254	750356.701	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CF44-002	2083766.48	750338.08	2083766.460	750338.027	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CF44-005	2083799.14	750353.22	2083799.210	750353.190	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CF44-009	2083861.25	750347.64	2083861.198	750351.585	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; moved 4 ft N to avoid OPWL. No change in depth intervals and analytes.
	CF45-004	2083831.8	750368.36	2083831.819	750368.314	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CF45-005	2083893.91	750362.78	2083893.972	750362.835	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CG44-001	2083956.01	750357.2	2083955.589	750359.802	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5	Radionuclides	Statistical characterization location; no significant change in location. No change in interval depths and analytes.
IHSS 118.1	CF46-000	2083842.378	750709.305	NA	NA	NA	NA	NA	Biased characterization location; location was excavated before sample could be collected.
	CF46-001	2083842.378	750693.18	NA	NA	NA	NA	NA	Biased characterization location; location was excavated before sample could be collected.
	CF46-002	2083852.93	750693.29	NA	NA	NA	NA	NA	Biased characterization location; location was excavated before sample could be collected.
	CF46-003	2083847.83	750701.24	NA	NA	NA	NA	NA	Biased characterization location; location was excavated before sample could be collected.



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Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CF46-042	NA	NA	2083872.308	750727.109	Subsurface soil	25 – 25.5	VOCs	Confirmation sampling location, bottom of excavation.
	CF46-043	NA	NA	2083854.917	750715.303	Subsurface soil	25 – 25.5	VOCs	Confirmation sampling location, bottom of excavation.
	CF46-044	NA	NA	2083844.583	750693.091	Subsurface soil	27 – 28	Radionuclides Metals VOCs	Confirmation sampling location, bottom of excavation.
	CF46-045	NA	NA	2083890.110	750715.826	Subsurface soil	25 – 25.5	VOCs	Confirmation sampling location, bottom of excavation.
	CF46-046	NA	NA	2083883.479	750665.539	Subsurface soil	3 – 3.1	Radionuclides Metals SVOCs VOCs	Biased characterization location to target french drain; added.
IHSS 118.2	CF44-001	2083760.04	750266.37	2083760.078	750266.361	Surface soil Subsurface soil	0-0.5 0.5 – 2.6	Radionuclides	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CF44-003	2083789.48	750245.65	2083786.912	750251.885	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides	Statistical characterization location; moved 7 ft NW to avoid concrete and building edge; 0.5 ft asphalt fill. No change in depth intervals and analytes.
	CF44-004	2083792.7	750281.51	2083792.737	750281.408	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides	Statistical characterization location; no significant change in location. No change in depth intervals and analytes. 0.5 ft of asphalt fill.
	CF44-006	2083822.14	750260.79	2083822.039	750262.936	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides	Statistical characterization location; no significant change in location; 0.5 ft asphalt fill. No change in depth intervals and analytes.
	CF44-007	2083851.59	750240.07	2083860.678	750246.046	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides	Statistical characterization location; moved 10 ft NE to outside the tank secondary containment; 0.2 ft asphalt fill. No change in depth intervals and analytes.
	CF44-008	2083854.81	750275.93	2083854.838	750275.894	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides	Statistical characterization location; no significant change in location; 0.2 ft asphalt fill. No change in depth intervals and analytes.
	CF44-010	2083884.25	750255.21	2083884.096	750251.887	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides	Statistical characterization location; moved 3 ft S to avoid alarm line; 0.2 ft asphalt fill. No change in depth intervals and analytes.

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Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CF44-011	2083916.91	750270.35	2083912.685	750251.490	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides	Statistical characterization location; moved 19 ft S due to permanent equipment storage racks and cargo containers; 0.2 ft asphalt fill. No change in depth intervals and analytes.
	CG44-000	2083949.57	750285.49	2083949.570	750285.490	Surface soil Subsurface soil	0 – 0.5 0.5 – 0.8	Radionuclides Metals VOCs (except A)	Statistical characterization location; no significant change in location. Partial recovery in B interval due to equipment refusal. Analyzed for metals and VOCs in addition to radionuclides.
	CG44-002	2083979.01	750264.78	2083979.010	750264.780	Surface soil Subsurface soil	0.6 – 1.1 1.1 – 1.4	Radionuclides Metals VOCs (except A)	Statistical characterization location; no significant change in location; 0.6 ft of asphalt fill. Partial recovery in B interval due to equipment refusal. Analyzed for metals and VOCs in addition to radionuclides.
IHSS 131	CE46-013	2083730.704	750672.884	2083745.663	750672.685	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Statistical characterization location; moved 15 ft E to avoid water line; 1.0 ft. of asphalt fill. No change in depth intervals and analytes.
	CE46-014	2083694.966	750668.553	2083694.995	750668.570	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Statistical characterization location; no significant change in location; 1.0 ft of asphalt fill. No change in depth intervals and analytes.
	CF46-020	2083802.181	750681.545	2083801.841	750675.522	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Statistical characterization location; moved 6 ft S to avoid water line; 0.5 ft of asphalt fill. No change in depth intervals and analytes.
	CF46-021	2083823.801	750652.759	2083823.834	750652.781	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Statistical characterization location; no significant change in location; 0.5 ft of asphalt fill. No change in depth intervals and analytes.
	CF46-022	2083766.443	750677.214	2083766.693	750673.629	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Statistical characterization location; moved 3.5 ft S to avoid water lines; 1 ft of asphalt fill. No change in depth intervals and analytes.
	CF46-024	2083809.682	750619.643	2083814.658	750637.113	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs	Statistical characterization location; moved 17.5 ft N and 5 ft E to avoid equipment (large fan); 0.4 ft concrete core. No change in depth intervals and analytes.

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Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CF46-026	2083780.266	750648.703	2083780.311	750648.678	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location; no significant change in location; 0.5 ft of asphalt fill. No change in depth intervals and analytes.
IHSS 144N	CF46-004	2083900.896	750747.666	2083900.886	750747.694	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location; no significant change in location. No change in depth intervals and analytes.
	CF46-005	2083921.747	750747.666	2083921.729	750747.641	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location; no significant change in location. No change in depth intervals and analytes.
	CF46-006	2083901.064	750711.680	2083901.557	750719.754	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location to target OPWL; moved 8 ft N to avoid hitting process waste line. No change in depth intervals and analytes. Planned and actual locations are NLR.
	CF46-007	2083921.915	750712.353	2083919.104	750705.867	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location to target OPWL; moved 3 ft W and 6 ft S to avoid hitting process waste line. No change in depth intervals and analytes. Planned and actual locations are NLR.
	CF46-008	2083899.887	750683.765	2083898.129	750691.643	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location to target IHSS; moved 2 ft W and 8 ft N to avoid tower water line. No change in depth intervals and analytes.
	CF46-009	2083922.084	750684.102	2083917.901	750690.993	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location to target IHSS; moved 4 ft W and 7 ft N to avoid water lines. No change in depth intervals and analytes.
	CF46-010	2083910.817	750699.236	2083912.384	750699.183	Surface soil Subsurface soil	0 - 0.5 0.5 - 2.5 2.5 - 4.5 4.5 - 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location to target IHSS; moved 2 ft E because of refusal - red concrete at 2 ft bgs. No change in depth intervals and analytes.

Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CF46-011	2083910.649	750729.505	2083910.984	750725.790	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location to target IHSS; moved 4 ft S to avoid sanitary lines. No change in depth intervals and analytes.
IHSS 150.2	CD45-000	2083529.73	750521.46	2083529.675	750521.514	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CD45-001	2083513.76	750489.2	2083513.834	750489.227	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CD45-002	2083533.72	750459.23	2083524.859	750460.016	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 8 ft W to avoid alarm system lines. No change in depth intervals and analytes.
	CD45-003	2083517.75	750426.97	2083517.675	750427.003	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CD45-004	2083521.73	750364.74	2083517.700	750364.760	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 4 ft W to avoid water line. No change in depth intervals and analytes.
	CD46-000	2083521.76	750645.91	2083521.693	750645.880	Surface soil Subsurface soil	0 – 0.5 0.5 – 0.75	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. Partial recovery in B interval due to equipment refusal. No change in analytes.
	CD46-001	2083525.74	750583.69	2083525.720	750583.720	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE44-000	2083541.69	750334.78	2083537.006	750338.183	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 6 ft NW to avoid unidentified line. No change in depth intervals and analytes.
	CE44-001	2083577.62	750337.08	2083577.581	750337.059	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE44-002	2083613.54	750339.39	2083613.511	750339.339	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes. 0.4 ft of asphalt fill.

Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CE45-000	2083545.7	750553.72	2083545.694	750553.643	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE45-001	2083581.63	750556.03	2083581.523	750555.962	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE45-002	2083565.66	750523.76	2083565.674	750523.768	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE45-003	2083601.58	750526.06	2083601.528	750525.813	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE45-004	2083549.69	750491.5	2083545.672	750491.566	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 4 ft W to avoid gas line. No change in depth intervals and analytes.
	CE45-005	2083585.61	750493.8	2083585.563	750493.823	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE45-006	2083621.54	750496.1	2083613.226	750496.829	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 8 ft W due to concrete. No change in depth intervals and analytes. 0.5 ft of asphalt fill
	CE45-007	2083569.64	750461.54	2083569.655	750461.575	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE45-008	2083605.57	750463.84	2083609.256	750463.500	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 4 ft E to avoid unidentified line. No change in depth intervals and analytes. 0.5 ft of asphalt fill.
	CE45-009	2083553.67	750429.27	2083553.725	750429.249	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CE45-010	2083589.6	750431.57	2083590.028	750440.169	Surface soil Subsurface soil	0-0.5 0.5 – 1	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 9 ft N to avoid utilities. Partial recovery in B interval due to equipment refusal. No change in analytes.

Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CE45-011	2083625.53	750433.88	2083623.763	750443.025	Surface soil Subsurface soil	0.8 – 1.3 1.3 – 1.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 9 ft N to avoid utilities. The A interval was collected below asphalt fill. Partial recovery in B interval due to equipment refusal. No change in analytes.
	CE45-012	2083537.7	750397.01	2083545.912	750396.080	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 8 ft E to avoid utilities. No change in depth intervals and analytes.
	CE45-013	2083573.63	750399.31	2083573.572	750399.317	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals. Analyzed A interval for VOCs.
	CE45-014	2083609.56	750401.61	2083619.039	750402.063	Surface soil Subsurface soil	0.8 – 1.3 1.3 – 1.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 9.5 ft E to avoid utilities. The A interval was collected below asphalt fill. Partial recovery in B interval due to equipment refusal. No change in analytes.
	CE45-015	2083557.66	750367.05	2083550.520	750366.354	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 7 ft W to avoid telephone line. No change in depth intervals and analytes.
	CE45-016	2083593.59	750369.35	2083600.691	750357.642	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 14 ft SE to avoid electrical and water lines. No change in depth intervals and analytes. 0.5 ft of asphalt fill.
	CE46-002	2083557.68	750648.22	2083562.868	750647.913	Surface soil Subsurface soil	0 – 0.5 0.5 – 0.75	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 5 ft E due to concrete. Partial recovery in B interval due to equipment refusal. No change in analytes.
	CE46-003	2083541.71	750615.95	2083540.077	750620.939	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 5 ft N to avoid power line. No change in depth intervals and analytes.
	CE46-004	2083577.64	750618.25	2083577.368	750624.136	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 6 ft N to avoid power line. No change in depth intervals and analytes. 0.5 ft asphalt fill.
	CE46-005	2083613.57	750620.55	2083612.718	750620.927	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.

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Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CE46-006	2083561.67	750585.99	2083561.690	750585.949	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides PCBs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes. 0.5 ft of asphalt fill.
	CE46-007	2083597.6	750588.29	2083602.269	750593.855	Surface soil Subsurface soil	0.8 – 1.3 1.3 – 3.3	Radionuclides PCBs VOCs (except A)	Statistical characterization location; moved 7 ft NE to avoid water line. The A interval was collected below asphalt fill. No change in analytes.
OPWL	CH47-025	NA	NA	2084178.830	750907.640	Surface soil	0 – 0.5	Radionuclides Metals VOCs	Confirmation sampling location at CH47-000 excavation sidewall.
	CH47-026	NA	NA	2084183.460	750910.550	Surface soil	0 – 0.5	Radionuclides Metals VOCs	Confirmation sampling location at CH47-000 excavation sidewall.
	CH47-027	NA	NA	2084187.140	750906.990	Surface soil	0 – 0.5	Radionuclides Metals VOCs	Confirmation sampling location at CH47-000 excavation sidewall.
	CH47-028	NA	NA	2084182.940	750903.310	Surface soil	0 – 0.5	Radionuclides Metals VOCs	Confirmation sampling location at CH47-000 excavation sidewall.
	CH47-029	NA	NA	2084166.926	750777.844	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 3	Radionuclides Metals VOCs	Confirmation sampling location at OPWL/valve vault/CH47-001 western excavation sidewall.
	CH47-030	NA	NA	2084183.930	750804.740	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 3	Radionuclides Metals VOCs	Confirmation sampling location at OPWL/valve vault/CH47-001 northern excavation sidewall.
	CH47-031	NA	NA	2084202.550	750763.450	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 3	Radionuclides Metals VOCs	Confirmation sampling location at OPWL/valve vault/CH47-001 eastern excavation sidewall.
	CH47-032	NA	NA	2084180.850	750748.010	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 3	Radionuclides Metals VOCs	Confirmation sampling location at OPWL/valve vault/CH47-001 southern excavation sidewall.
	CH47-054	NA	NA	2084176.000	750789.000	Surface soil Subsurface soil	5.5 – 6	Radionuclides Metals VOCs	Confirmation sampling location at bottom of OPWL/valve vault/CH47-001 excavation.

Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CG44-005	2084038.260	750266.370	2084033.078	750266.517	Surface soil Subsurface soil	0 - 0.5 1.5 - 2.5 3.5 - 4.5 4.5 - 6.5 6.5 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; moved 5 ft W to target OPWL. Partial recovery from B and C intervals due to equipment refusal. No change in analytes.
	CG46-005	2084093.110	750723.130	2084093.060	750723.086	Surface soil Subsurface soil	0 - 0.5 1 - 2.5 3.5 - 4.5 4.5 - 6.5 7.5 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; no significant change in location. Partial recovery from B, C and E intervals due to equipment refusal. No change in analytes.
	CG46-006	2084093.600	750714.220	2084093.321	750713.100	Surface soil Subsurface soil	0 - 0.5 1.5 - 2.5 3.5 - 4.5 5 - 6.5 6.5 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; no significant change in location. Partial recovery from B, C and D intervals due to equipment refusal. No change in analytes.
	CG46-007	2084093.350	750696.640	2084093.397	750697.227	Surface soil Subsurface soil	0 - 0.5 1 - 2.5 3.5 - 4.5 4.5 - 6.5 6.5 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; no significant change in location. Partial recovery from B and C intervals due to equipment refusal. No change in analytes.
	CG47-004	2084092.070	750897.890	2084089.329	750897.859	Surface soil Subsurface soil	0 - 0.5 1 - 2.5 3.5 - 4.5 5.5 - 6.5 7.5 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; no significant change in location. Partial recovery from B - D intervals due to equipment refusal. No change in analytes.
	CH46-000	2084153.760	750704.070	2084154.640	750704.175	Surface soil Subsurface soil	0 - 0.5 1 - 2.5 3.5 - 4.5 5 - 6.5 6.5 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; no significant change in location. Partial recovery from B, C and D intervals due to equipment refusal. No change in analytes.
	CH46-001	2084153.760	750698.870	2084162.960	750694.659	Surface soil Subsurface soil	0 - 0.5 1 - 2.5 3.5 - 4.5 5 - 6.5 6.5 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; moved 9 ft E and 4 ft S to target OPWL. Partial recovery from B - D intervals due to equipment refusal. No change in analytes.
	CH46-002	2084154.750	750693.420	2084163.553	750694.278	Surface soil Subsurface soil	0 - 0.5 1 - 2.5 3.5 - 4.5 5.5 - 6.5 7.3 - 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; moved 9 ft E to target OPWL. Partial recovery from B - E intervals due to equipment refusal. No change in analytes.

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Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CH46-003	2084149.060	750700.850	2084146.312	750699.280	Surface soil Subsurface soil	0 – 0.5 1 – 2.5 3.5 – 4.5 5.5 – 6.5 7.1 – 8	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; no significant change in location. Partial recovery from B – E intervals due to equipment refusal. No change in analytes.
	CH47-000	2084181.910	750911.210	2084180.313	750918.018	Surface soil Subsurface soil	0 – 0.5 1 – 2.5 3 – 4.5 5 – 6.5 7 – 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; moved 7 ft N to target OPWL. Subsurface intervals also used for confirmation that concentrations were less than WRW ALs. Partial recovery from B – E intervals due to equipment refusal. No change in analytes.
	CH47-001	2084182.480	750780.570	2084181.862	750780.174	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 3.5 – 4.5 5 – 6.5 6.5 – 8.5	Radionuclides Metals VOCs (except A)	Biased characterization location to investigate known OPWL leak; no significant change in location. Partial recovery from C and D intervals due to equipment refusal. No change in analytes.
PAC 1100	CF46-023	2083788.062	750648.429	2083788.038	750648.535	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Statistical characterization location; no significant change in location. No change in depth intervals and analytes.
	CF46-025	2083779.973	750612.913	2083789.945	750633.378	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location; moved 20.5 ft N and 10 ft E to be outside Bldg 776; Intervals B-D moved 1 ft N due to equipment refusal. No change in depth intervals and analytes.
	CF46-027	2083779.973	750667.185	2083779.420	750673.163	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location; moved 6 ft N to avoid water line. No change in depth intervals and analytes.
	CF46-028	2083870.622	750667.479	2083865.683	750661.313	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5 2.5 – 4.5 4.5 – 6.5	Radionuclides Metals SVOCs VOCs (except A)	Biased characterization location; moved 6 ft SSW to avoid process waste line and water lines; 0.5 ft of asphalt fill. No change in depth intervals and analytes.
	CE45-025	2083715.34	750367.86	2083724.277	750367.130	Surface soil Subsurface soil	0-0.5 0.5 – 2.5	Radionuclides Metals PCBs VOCs (except A)	Biased characterization location; moved 9 ft E to be outside building. No change in depth intervals. Metals, PCBs and VOCs added.

Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
UBC 701	CE46-008	2083711.076	750717.393	2083711.076	750717.393	Surface soil Subsurface soil	0.4 – 0.9 0.9 – 2.9	Radionuclides Metals VOCs (except A)	Statistical characterization location; no significant change in location. The A interval was collected under the slab. No change in analytes.
	CE46-012	2083706.110	750747.590	2083706.110	750747.590	Surface soil Subsurface soil	0.3 – 0.8 0.8 – 2.8	Radionuclides Metals VOCs (except A)	Biased characterization location to improve coverage; no significant change in location. The A interval was collected under the slab. No change in analytes.
	CE46-018	NA	NA	2083804.000	750746.220	Surface soil	0 – 0.3	Radionuclides	Biased characterization location; not planned; grab sample collected after slab was removed.
	CE46-019	NA	NA	2083803.884	750749.220	Surface soil	0 – 0.3	Radionuclides Metals SVOCs VOCs	Biased characterization location; not planned; grab sample collected after slab was removed.
	CE46-020	NA	NA	2083791.860	750750.720	Surface soil	0 – 0.3	Radionuclides	Biased characterization location; not planned; grab sample collected after slab was removed.
	CE46-021	NA	NA	2083791.860	750747.720	Surface soil	0 – 0.3	Radionuclides	Biased characterization location; not planned; grab sample collected after slab was removed.
	CE46-023	NA	NA	2083708.756	750760.870	Subsurface soil	3.5 – 4	Radionuclides TPH	Confirmation sampling location; oil-line trench, center of excavation.
	CE46-024	NA	NA	2083702.717	750749.815	Subsurface soil	0 – 3.5	Radionuclides TPH	Confirmation sampling location; oil-line trench, composite sample from south excavation sidewall.
	CE46-025	NA	NA	2083706.866	750760.954	Subsurface soil	0 – 3.5	Radionuclides TPH	Confirmation sampling location; oil-line trench, composite sample from west excavation sidewall.
	CE46-026	NA	NA	2083723.426	750789.548	Subsurface soil	0 – 3	Radionuclides TPH	Confirmation sampling location; oil-line trench, composite sample from north excavation sidewall.
	CE46-027	NA	NA	2083709.820	750760.354	Subsurface soil	0 – 3.5	Radionuclides TPH	Confirmation sampling location; oil-line trench, composite sample from east excavation sidewall.
	CF46-012	2083778.652	750742.242	2083778.652	750742.242	Surface soil Subsurface soil	1.1 – 1.6 1.6 – 2.6	Radionuclides Metals VOCs (except A)	Statistical characterization location; no significant change in location (actual coordinates estimated based on field measurements). The A interval was collected under the slab. Partial recovery in B interval due to equipment refusal. No change in analytes.
	CF46-015	2083825.240	750716.570	2083825.240	750716.570	Surface soil Subsurface soil	1.3 – 1.8 1.8 – 3.8	Radionuclides Metals VOCs (except A)	Biased characterization location to delineate extent of contamination; no significant change in location (actual coordinates estimated based on field measurements). The A interval was collected under the slab. No change in analytes.

Site	Sampling Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Intervals	Actual Analytes	Comments
	CF46-016	2083825.240	750746.350	2083825.240	750746.350	Surface soil Subsurface soil	1.1 – 1.6 1.6 – 3.6	Radionuclides Metals VOCs (except A)	Biased characterization location to delineate extent of contamination; no significant change in location (actual coordinates estimated based on field measurements). The A interval was collected under the slab. No change in analytes.
	CF46-035	NA	NA	2083804.152	750755.736	Surface soil	0 – 0.5	Radionuclides	Biased characterization location; added to improve coverage.
	CF46-036	NA	NA	2083776.639	750712.114	Surface soil	0 – 0.5	Radionuclides Metals SVOCs VOCs	Biased characterization location; added to improve coverage.
	CF46-037	NA	NA	2083803.788	750755.710	Subsurface soil	0.5 – 3.5	Radionuclides	Confirmation sampling location, north sidewall of excavation.
	CF46-038	NA	NA	2083804.644	750746.284	Subsurface soil	0.5 – 2.5	Radionuclides	Confirmation sampling location, south sidewall of excavation.
	CF46-039	NA	NA	2083807.956	750750.649	Subsurface soil	0.5 – 2.5	Radionuclides	Confirmation sampling location, east sidewall of excavation.
	CF46-040	NA	NA	2083799.841	750751.117	Subsurface soil	0.5 – 3	Radionuclides	Confirmation sampling location, west sidewall of excavation.
	CF46-041	NA	NA	2083803.504	750751.446	Subsurface soil	3 – 3.5	Radionuclides	Confirmation sampling location, bottom of excavation.
UBC 777	CF45-017	2083932.79	750365.26	2083933.274	750348.155	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides Metals VOCs (except A)	Biased characterization location to improve coverage; moved 17 ft S outside building to avoid sanitary line. No change in depth intervals and analytes.
UBC 778	CE44-032	NA	NA	2083616.699	750301.756	Surface soil Subsurface soil	0.5 – 1 1 – 3	Radionuclides Metals VOCs (except A)	Biased characterization sampling location added to target New Process Waste Line; 0.5 ft asphalt fill.
	CG44-004	2084085.97	750323.76	2084103.197	750343.975	Surface soil Subsurface soil	0 – 0.5 0.5 – 2.5	Radionuclides Metals VOCs (except A)	Statistical characterization location; refusal at A & B intervals; moved outside 17 ft W and 20 ft S. No change in interval depths and analytes.
	CH44-000	2084208.85	750302.51	2084208.850	750302.510	Surface soil Subsurface soil	0.7 – 1.2 1.2 – 1.7	Radionuclides Metals VOCs (except A)	Statistical characterization location; no significant change of location; 0.7 ft concrete. Partial recovery from B interval due to equipment refusal. No change in analytes.

**Table 3**  
**IHSS Group 700-3 Sampling and Analysis Summary**

Category	Actual Total
Number of Sampling Locations	126
Number of Samples	297
Number of Radionuclide Analyses	326
Number of Metal Analyses	177
Number of Volatile Organic Compound (VOC) Analyses	171
Number of Semi-Volatile Organic Compound (SVOC) Analyses	78
Number of Polychlorinated Biphenyl (PCB) Analyses	68
Number of Total Petroleum Hydrocarbon (TPH) Analyses	5

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Table 4  
IHSS Group 700-3 Accelerated Action Soil Characterization Data

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CD45-000	750521.514	2083529.675	0.5	2.5	Uranium-238	1.848	NA	1.490	351	pCi/g
CD45-001	750489.227	2083513.834	0.5	2.5	Uranium-234	4.463	NA	2.640	300	pCi/g
CD45-001	750489.227	2083513.834	0.5	2.5	Uranium-238	4.463	NA	1.490	351	pCi/g
CD45-002	750460.016	2083524.859	0.0	0.5	Uranium-235	0.133	NA	0.094	8	pCi/g
CD45-003	750427.003	2083517.675	0.0	0.5	Uranium-235	0.129	NA	0.094	8	pCi/g
CD45-003	750427.003	2083517.675	0.5	2.5	Uranium-235	0.162	NA	0.120	8	pCi/g
CD45-003	750427.003	2083517.675	0.5	2.5	Uranium-238	1.525	NA	1.490	351	pCi/g
CD45-004	750364.760	2083517.700	0.0	0.5	Uranium-235	0.163	NA	0.094	8	pCi/g
CD45-004	750364.760	2083517.700	0.5	2.5	Aroclor-1260	68.000	6.600	NA	12400	ug/kg
CD46-000	750645.880	2083521.693	0.0	0.5	Uranium-234	3.875	NA	2.253	300	pCi/g
CD46-000	750645.880	2083521.693	0.0	0.5	Uranium-235	0.161	NA	0.094	8	pCi/g
CD46-000	750645.880	2083521.693	0.0	0.5	Uranium-238	3.875	NA	2.000	351	pCi/g
CD46-000	750645.880	2083521.693	0.5	0.8	Aroclor-1260	6.700	6.000	NA	12400	ug/kg
CD46-000	750645.880	2083521.693	0.5	0.8	Uranium-234	4.121	NA	2.640	300	pCi/g
CD46-000	750645.880	2083521.693	0.5	0.8	Uranium-235	0.264	NA	0.120	8	pCi/g
CD46-000	750645.880	2083521.693	0.5	0.8	Uranium-238	4.121	NA	1.490	351	pCi/g
CD46-001	750583.720	2083525.720	0.5	2.5	Acetone	29.000	5.600	NA	102000000	ug/kg
CE44-000	750338.183	2083537.006	0.0	0.5	Uranium-234	3.719	NA	2.253	300	pCi/g
CE44-000	750338.183	2083537.006	0.0	0.5	Uranium-235	0.184	NA	0.094	8	pCi/g
CE44-000	750338.183	2083537.006	0.0	0.5	Uranium-238	3.719	NA	2.000	351	pCi/g
CE44-000	750338.183	2083537.006	0.5	2.5	Uranium-238	1.671	NA	1.490	351	pCi/g
CE44-001	750337.059	2083577.581	0.0	0.5	Aroclor-1254	20.000	4.600	NA	12400	ug/kg
CE44-001	750337.059	2083577.581	0.0	0.5	Uranium-234	2.263	NA	2.253	300	pCi/g
CE44-001	750337.059	2083577.581	0.0	0.5	Uranium-238	2.263	NA	2.000	351	pCi/g
CE44-001	750337.059	2083577.581	0.5	2.5	Aroclor-1254	12.000	4.700	NA	12400	ug/kg
CE44-001	750337.059	2083577.581	0.5	2.5	Uranium-238	1.686	NA	1.490	351	pCi/g
CE44-002	750339.339	2083613.511	0.5	2.5	Aroclor-1254	250.000	4.600	NA	12400	ug/kg
CE44-002	750339.339	2083613.511	0.5	2.5	Uranium-235	0.173	NA	0.120	8	pCi/g
CE44-003	750360.802	2083625.069	0.0	0.5	Uranium-235	0.163	NA	0.094	8	pCi/g
CE44-003	750360.802	2083625.069	0.5	2.5	Uranium-235	0.151	NA	0.120	8	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CE44-032	750301.756	2083616.699	0.5	1.0	Beryllium	1.300	NA	0.966	921	mg/kg
CE44-032	750301.756	2083616.699	0.5	1.0	Copper	37.000	NA	18.060	40900	mg/kg
CE44-032	750301.756	2083616.699	0.5	1.0	Iron	25000.000	NA	18037.000	307000	mg/kg
CE44-032	750301.756	2083616.699	0.5	1.0	Lithium	18.000	NA	11.550	20400	mg/kg
CE44-032	750301.756	2083616.699	0.5	1.0	Manganese	590.000	NA	365.080	3480	mg/kg
CE44-032	750301.756	2083616.699	0.5	1.0	Uranium-234	4.848	NA	2.253	300	pCi/g
CE44-032	750301.756	2083616.699	0.5	1.0	Uranium-235	0.284	NA	0.094	8	pCi/g
CE44-032	750301.756	2083616.699	0.5	1.0	Uranium-238	4.848	NA	2.000	351	pCi/g
CE44-032	750301.756	2083616.699	0.5	1.0	Zinc	76.000	NA	73.760	307000	mg/kg
CE44-032	750301.756	2083616.699	1.0	3.0	Uranium-234	3.163	NA	2.640	300	pCi/g
CE44-032	750301.756	2083616.699	1.0	3.0	Uranium-235	0.325	NA	0.120	8	pCi/g
CE44-032	750301.756	2083616.699	1.0	3.0	Uranium-238	3.163	NA	1.490	351	pCi/g
CE45-000	750553.643	2083545.694	0.0	0.5	Uranium-234	3.797	NA	2.253	300	pCi/g
CE45-000	750553.643	2083545.694	0.0	0.5	Uranium-235	0.212	NA	0.094	8	pCi/g
CE45-000	750553.643	2083545.694	0.0	0.5	Uranium-238	3.797	NA	2.000	351	pCi/g
CE45-000	750553.643	2083545.694	0.5	2.5	Uranium-234	4.788	NA	2.640	300	pCi/g
CE45-000	750553.643	2083545.694	0.5	2.5	Uranium-235	0.239	NA	0.120	8	pCi/g
CE45-000	750553.643	2083545.694	0.5	2.5	Uranium-238	4.788	NA	1.490	351	pCi/g
CE45-001	750555.962	2083581.523	0.0	0.5	Uranium-235	0.109	NA	0.094	8	pCi/g
CE45-001	750555.962	2083581.523	0.5	2.5	Uranium-234	4.622	NA	2.640	300	pCi/g
CE45-001	750555.962	2083581.523	0.5	2.5	Uranium-235	0.238	NA	0.120	8	pCi/g
CE45-001	750555.962	2083581.523	0.5	2.5	Uranium-238	4.622	NA	1.490	351	pCi/g
CE45-002	750523.768	2083565.674	0.0	0.5	Aroclor-1260	26.000	6.700	NA	12400	ug/kg
CE45-002	750523.768	2083565.674	0.0	0.5	Uranium-235	0.116	NA	0.094	8	pCi/g
CE45-003	750525.813	2083601.528	0.0	0.5	Plutonium-239/240	0.316	NA	0.066	50	pCi/g
CE45-003	750525.813	2083601.528	0.5	2.5	1,1-Dichloroethane	4.000	1.000	NA	2250000	ug/kg
CE45-003	750525.813	2083601.528	0.5	2.5	1,2,4-Trichlorobenzene	0.810	0.740	NA	9230000	ug/kg
CE45-003	750525.813	2083601.528	0.5	2.5	Ethylbenzene	3.600	1.200	NA	4250000	ug/kg
CE45-003	750525.813	2083601.528	0.5	2.5	Naphthalene	3.300	0.900	NA	3090000	ug/kg
CE45-003	750525.813	2083601.528	0.5	2.5	Plutonium-239/240	0.778	NA	0.020	50	pCi/g
CE45-003	750525.813	2083601.528	0.5	2.5	Tetrachloroethene	180.000	1.000	NA	615000	ug/kg
CE45-003	750525.813	2083601.528	0.5	2.5	Toluene	3.400	0.810	NA	3130000	ug/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CE45-003	750525.813	2083601.528	0.5	2.5	Trichloroethene	12.000	0.910	NA	19600	ug/kg
CE45-003	750525.813	2083601.528	0.5	2.5	Xylene	12.000	2.900	NA	2040000	ug/kg
CE45-004	750491.566	2083545.672	0.0	0.5	Aroclor-1260	17.000	6.700	NA	12400	ug/kg
CE45-004	750491.566	2083545.672	0.5	2.5	Uranium-235	0.178	NA	0.120	8	pCi/g
CE45-004	750491.566	2083545.672	0.5	2.5	Uranium-238	1.750	NA	1.490	351	pCi/g
CE45-005	750493.823	2083585.563	0.0	0.5	Uranium-235	0.136	NA	0.094	8	pCi/g
CE45-005	750493.823	2083585.563	0.5	2.5	Uranium-234	3.789	NA	2.640	300	pCi/g
CE45-005	750493.823	2083585.563	0.5	2.5	Uranium-238	3.789	NA	1.490	351	pCi/g
CE45-006	750496.829	2083613.226	0.0	0.5	Uranium-234	5.139	NA	2.253	300	pCi/g
CE45-006	750496.829	2083613.226	0.0	0.5	Uranium-235	0.227	NA	0.094	8	pCi/g
CE45-006	750496.829	2083613.226	0.0	0.5	Uranium-238	5.139	NA	2.000	351	pCi/g
CE45-006	750496.829	2083613.226	0.5	2.5	Aroclor-1254	370.000	22.000	NA	12400	ug/kg
CE45-006	750496.829	2083613.226	0.5	2.5	Uranium-235	0.148	NA	0.120	8	pCi/g
CE45-007	750461.575	2083569.655	0.0	0.5	Americium-241	0.144	NA	0.023	76	pCi/g
CE45-007	750461.575	2083569.655	0.0	0.5	Aroclor-1260	18.000	6.900	NA	12400	ug/kg
CE45-007	750461.575	2083569.655	0.0	0.5	Plutonium-239/240	0.556	NA	0.066	50	pCi/g
CE45-008	750463.500	2083609.256	0.0	0.5	Aroclor-1254	25.000	4.500	NA	12400	ug/kg
CE45-008	750463.500	2083609.256	0.0	0.5	Uranium-235	0.138	NA	0.094	8	pCi/g
CE45-008	750463.500	2083609.256	0.5	2.5	Tetrachloroethene	10.600	4.930	NA	615000	ug/kg
CE45-008	750463.500	2083609.256	0.5	2.5	Uranium-234	3.834	NA	2.640	300	pCi/g
CE45-008	750463.500	2083609.256	0.5	2.5	Uranium-235	0.206	NA	0.120	8	pCi/g
CE45-008	750463.500	2083609.256	0.5	2.5	Uranium-238	3.834	NA	1.490	351	pCi/g
CE45-009	750429.249	2083553.725	0.0	0.5	Uranium-235	0.175	NA	0.094	8	pCi/g
CE45-009	750429.249	2083553.725	0.5	2.5	Uranium-235	0.187	NA	0.120	8	pCi/g
CE45-009	750429.249	2083553.725	0.5	2.5	Uranium-238	1.936	NA	1.490	351	pCi/g
CE45-010	750440.169	2083590.028	0.0	0.5	Aroclor-1260	13.000	6.100	NA	12400	ug/kg
CE45-010	750440.169	2083590.028	0.0	0.5	Uranium-234	3.115	NA	2.253	300	pCi/g
CE45-010	750440.169	2083590.028	0.0	0.5	Uranium-235	0.170	NA	0.094	8	pCi/g
CE45-010	750440.169	2083590.028	0.0	0.5	Uranium-238	3.115	NA	2.000	351	pCi/g
CE45-010	750440.169	2083590.028	0.5	1.0	Aroclor-1260	11.000	6.500	NA	12400	ug/kg
CE45-010	750440.169	2083590.028	0.5	1.0	Uranium-234	4.334	NA	2.640	300	pCi/g
CE45-010	750440.169	2083590.028	0.5	1.0	Uranium-238	4.334	NA	1.490	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CE45-011	750443.025	2083623.763	0.8	1.3	Uranium-234	3.936	NA	2.253	300	pCi/g
CE45-011	750443.025	2083623.763	0.8	1.3	Uranium-235	0.173	NA	0.094	8	pCi/g
CE45-011	750443.025	2083623.763	0.8	1.3	Uranium-238	3.936	NA	2.000	351	pCi/g
CE45-011	750443.025	2083623.763	1.3	1.5	Uranium-234	3.000	NA	2.640	300	pCi/g
CE45-011	750443.025	2083623.763	1.3	1.5	Uranium-235	0.201	NA	0.120	8	pCi/g
CE45-011	750443.025	2083623.763	1.3	1.5	Uranium-238	3.000	NA	1.490	351	pCi/g
CE45-013	750399.317	2083573.572	0.0	0.5	Aroclor-1254	21.000	4.800	NA	12400	ug/kg
CE45-013	750399.317	2083573.572	0.0	0.5	Uranium-235	0.216	NA	0.094	8	pCi/g
CE45-013	750399.317	2083573.572	0.5	2.5	Aroclor-1254	140.000	4.800	NA	12400	ug/kg
CE45-013	750399.317	2083573.572	0.5	2.5	Uranium-235	0.209	NA	0.120	8	pCi/g
CE45-014	750402.063	2083619.039	0.8	1.3	Uranium-234	3.385	NA	2.253	300	pCi/g
CE45-014	750402.063	2083619.039	0.8	1.3	Uranium-235	0.185	NA	0.094	8	pCi/g
CE45-014	750402.063	2083619.039	0.8	1.3	Uranium-238	3.385	NA	2.000	351	pCi/g
CE45-014	750402.063	2083619.039	1.3	1.5	Plutonium-239/240	0.263	NA	0.020	50	pCi/g
CE45-014	750402.063	2083619.039	1.3	1.5	Uranium-235	1.530	NA	0.120	8	pCi/g
CE45-015	750366.354	2083550.520	0.0	0.5	Plutonium-239/240	0.376	NA	0.066	50	pCi/g
CE45-015	750366.354	2083550.520	0.5	2.5	Plutonium-239/240	0.413	NA	0.020	50	pCi/g
CE45-016	750357.642	2083600.691	0.0	0.5	Aroclor-1254	11.000	4.500	NA	12400	ug/kg
CE45-016	750357.642	2083600.691	0.0	0.5	Uranium-234	5.726	NA	2.253	300	pCi/g
CE45-016	750357.642	2083600.691	0.0	0.5	Uranium-235	0.293	NA	0.094	8	pCi/g
CE45-016	750357.642	2083600.691	0.0	0.5	Uranium-238	5.726	NA	2.000	351	pCi/g
CE45-016	750357.642	2083600.691	0.5	2.5	Aroclor-1254	19.000	4.700	NA	12400	ug/kg
CE45-016	750357.642	2083600.691	0.5	2.5	Uranium-234	5.439	NA	2.640	300	pCi/g
CE45-016	750357.642	2083600.691	0.5	2.5	Uranium-235	0.253	NA	0.120	8	pCi/g
CE45-016	750357.642	2083600.691	0.5	2.5	Uranium-238	5.439	NA	1.490	351	pCi/g
CE45-017	750367.995	2083674.821	0.0	0.5	Uranium-235	0.189	NA	0.094	8	pCi/g
CE45-017	750367.995	2083674.821	0.5	2.5	Uranium-238	1.686	NA	1.490	351	pCi/g
CE45-025	750367.130	2083724.277	0.0	0.5	Chromium	26.000	NA	16.990	268	mg/kg
CE45-025	750367.130	2083724.277	0.0	0.5	Copper	28.000	NA	18.060	40900	mg/kg
CE45-025	750367.130	2083724.277	0.0	0.5	Lithium	12.000	NA	11.550	20400	mg/kg
CE45-025	750367.130	2083724.277	0.0	0.5	Nickel	19.000	NA	14.910	20400	mg/kg
CE45-025	750367.130	2083724.277	0.0	0.5	Uranium-235	0.171	NA	0.094	8	pCi/g



Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CE45-025	750367.130	2083724.277	0.5	2.5	Americium-241	0.993	NA	0.020	76	pCi/g
CE45-025	750367.130	2083724.277	0.5	2.5	Aroclor-1260	14.000	6.600	NA	12400	ug/kg
CE45-025	750367.130	2083724.277	0.5	2.5	Plutonium-239/240	5.662	NA	0.020	50	pCi/g
CE45-025	750367.130	2083724.277	0.5	2.5	Uranium-235	0.142	NA	0.120	8	pCi/g
CE45-025	750367.130	2083724.277	0.5	2.5	Uranium-238	1.751	NA	1.490	351	pCi/g
CE46-002	750647.913	2083562.868	0.0	0.5	Aroclor-1254	13.000	4.600	NA	12400	ug/kg
CE46-002	750647.913	2083562.868	0.0	0.5	Aroclor-1260	11.000	6.200	NA	12400	ug/kg
CE46-002	750647.913	2083562.868	0.0	0.5	Uranium-234	4.364	NA	2.253	300	pCi/g
CE46-002	750647.913	2083562.868	0.0	0.5	Uranium-235	0.210	NA	0.094	8	pCi/g
CE46-002	750647.913	2083562.868	0.0	0.5	Uranium-238	4.364	NA	2.000	351	pCi/g
CE46-002	750647.913	2083562.868	0.5	0.8	Uranium-234	4.340	NA	2.640	300	pCi/g
CE46-002	750647.913	2083562.868	0.5	0.8	Uranium-235	0.141	NA	0.120	8	pCi/g
CE46-002	750647.913	2083562.868	0.5	0.8	Uranium-238	4.340	NA	1.490	351	pCi/g
CE46-003	750620.939	2083540.077	0.0	0.5	Uranium-234	3.206	NA	2.253	300	pCi/g
CE46-003	750620.939	2083540.077	0.0	0.5	Uranium-235	0.231	NA	0.094	8	pCi/g
CE46-003	750620.939	2083540.077	0.0	0.5	Uranium-238	3.206	NA	2.000	351	pCi/g
CE46-003	750620.939	2083540.077	0.5	2.5	Aroclor-1260	29.000	6.800	NA	12400	ug/kg
CE46-003	750620.939	2083540.077	0.5	2.5	Uranium-234	3.806	NA	2.640	300	pCi/g
CE46-003	750620.939	2083540.077	0.5	2.5	Uranium-235	0.214	NA	0.120	8	pCi/g
CE46-003	750620.939	2083540.077	0.5	2.5	Uranium-238	3.806	NA	1.490	351	pCi/g
CE46-004	750624.136	2083577.368	0.0	0.5	Uranium-234	4.950	NA	2.253	300	pCi/g
CE46-004	750624.136	2083577.368	0.0	0.5	Uranium-235	0.197	NA	0.094	8	pCi/g
CE46-004	750624.136	2083577.368	0.0	0.5	Uranium-238	4.950	NA	2.000	351	pCi/g
CE46-005	750620.927	2083612.718	0.0	0.5	Plutonium-239/240	0.194	NA	0.066	50	pCi/g
CE46-005	750620.927	2083612.718	0.5	2.5	Plutonium-239/240	0.214	NA	0.020	50	pCi/g
CE46-006	750585.949	2083561.690	0.0	0.5	Uranium-235	0.148	NA	0.094	8	pCi/g
CE46-006	750585.949	2083561.690	0.5	2.5	Aroclor-1260	210.000	6.700	NA	12400	ug/kg
CE46-006	750585.949	2083561.690	0.5	2.5	Uranium-234	3.315	NA	2.640	300	pCi/g
CE46-006	750585.949	2083561.690	0.5	2.5	Uranium-235	0.188	NA	0.120	8	pCi/g
CE46-006	750585.949	2083561.690	0.5	2.5	Uranium-238	3.315	NA	1.490	351	pCi/g
CE46-007	750593.855	2083602.269	0.8	1.3	Aroclor-1254	200.000	4.900	NA	12400	ug/kg
CE46-007	750593.855	2083602.269	0.8	1.3	Uranium-234	4.306	NA	2.253	300	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CE46-007	750593.855	2083602.269	0.8	1.3	Uranium-238	4.306	NA	2.000	351	pCi/g
CE46-007	750593.855	2083602.269	1.3	3.3	Uranium-234	4.588	NA	2.640	300	pCi/g
CE46-007	750593.855	2083602.269	1.3	3.3	Uranium-235	0.281	NA	0.120	8	pCi/g
CE46-007	750593.855	2083602.269	1.3	3.3	Uranium-238	4.588	NA	1.490	351	pCi/g
CE46-008	750717.393	2083711.076	0.4	0.9	Chromium	17.000	NA	16.990	268	mg/kg
CE46-008	750717.393	2083711.076	0.4	0.9	Copper	68.000	NA	18.060	40900	mg/kg
CE46-008	750717.393	2083711.076	0.4	0.9	Nickel	16.000	NA	14.910	20400	mg/kg
CE46-008	750717.393	2083711.076	0.4	0.9	Plutonium-239/240	0.110	NA	0.066	50	pCi/g
CE46-008	750717.393	2083711.076	0.9	2.9	Plutonium-239/240	0.207	NA	0.020	50	pCi/g
CE46-008	750717.393	2083711.076	0.9	2.9	Tetrachloroethene	1.900	1.100	NA	615000	ug/kg
CE46-012	750747.590	2083706.110	0.3	0.8	Copper	29.000	NA	18.060	40900	mg/kg
CE46-012	750747.590	2083706.110	0.3	0.8	Uranium-234	3.974	NA	2.253	300	pCi/g
CE46-012	750747.590	2083706.110	0.3	0.8	Uranium-235	0.262	NA	0.094	8	pCi/g
CE46-012	750747.590	2083706.110	0.3	0.8	Uranium-238	3.974	NA	2.000	351	pCi/g
CE46-012	750747.590	2083706.110	0.8	2.8	Uranium-234	4.024	NA	2.640	300	pCi/g
CE46-012	750747.590	2083706.110	0.8	2.8	Uranium-235	0.204	NA	0.120	8	pCi/g
CE46-012	750747.590	2083706.110	0.8	2.8	Uranium-238	4.024	NA	1.490	351	pCi/g
CE46-013	750672.685	2083745.663	0.0	0.5	Benzo(a)pyrene	52.000	41.000	NA	3490	ug/kg
CE46-013	750672.685	2083745.663	0.0	0.5	Benzo(b)fluoranthene	49.000	30.000	NA	34900	ug/kg
CE46-013	750672.685	2083745.663	0.0	0.5	Chrysene	44.000	29.000	NA	3490000	ug/kg
CE46-013	750672.685	2083745.663	0.0	0.5	Fluoranthene	69.000	23.000	NA	27200000	ug/kg
CE46-013	750672.685	2083745.663	0.0	0.5	Uranium-234	3.952	NA	2.253	300	pCi/g
CE46-013	750672.685	2083745.663	0.0	0.5	Uranium-235	0.197	NA	0.094	8	pCi/g
CE46-013	750672.685	2083745.663	0.0	0.5	Uranium-238	3.952	NA	2.000	351	pCi/g
CE46-013	750672.685	2083745.663	0.5	2.5	Chromium	77.000	NA	68.270	268	mg/kg
CE46-013	750672.685	2083745.663	0.5	2.5	Manganese	950.000	NA	901.620	3480	mg/kg
CE46-013	750672.685	2083745.663	0.5	2.5	Uranium-235	0.214	NA	0.120	8	pCi/g
CE46-013	750672.685	2083745.663	0.5	2.5	Uranium-238	2.234	NA	1.490	351	pCi/g
CE46-013	750672.685	2083745.663	2.5	4.5	Carbon Tetrachloride	14.200	4.710	NA	81500	ug/kg
CE46-013	750672.685	2083745.663	4.5	6.5	Uranium-235	0.229	NA	0.120	8	pCi/g
CE46-014	750668.570	2083694.995	0.0	0.5	2-Methylnaphthalene	390.000	320.000	NA	20400000	ug/kg
CE46-014	750668.570	2083694.995	0.0	0.5	Benzo(a)anthracene	470.000	250.000	NA	34900	ug/kg

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CE46-014	750668.570	2083694.995	0.0	0.5	Chrysene	560.000	280.000	NA	3490000	ug/kg
CE46-014	750668.570	2083694.995	0.0	0.5	Fluoranthene	980.000	230.000	NA	27200000	ug/kg
CE46-014	750668.570	2083694.995	0.0	0.5	Plutonium-239/240	0.338	NA	0.066	50	pCi/g
CE46-014	750668.570	2083694.995	0.5	2.5	Acetone	9.900	5.100	NA	102000000	ug/kg
CE46-014	750668.570	2083694.995	0.5	2.5	Carbon Tetrachloride	5.600	1.300	NA	81500	ug/kg
CE46-014	750668.570	2083694.995	0.5	2.5	Chloroform	1.100	0.990	NA	19200	ug/kg
CE46-014	750668.570	2083694.995	0.5	2.5	Naphthalene	3.200	0.950	NA	3090000	ug/kg
CE46-014	750668.570	2083694.995	0.5	2.5	Tetrachloroethene	43.000	1.100	NA	615000	ug/kg
CE46-014	750668.570	2083694.995	2.5	4.5	Tetrachloroethene	2.000	1.200	NA	615000	ug/kg
CE46-014	750668.570	2083694.995	4.5	6.5	Plutonium-239/240	0.544	NA	0.020	50	pCi/g
CE46-018	750746.220	2083804.000	0.0	0.3	Uranium-234	3.819	NA	2.253	300	pCi/g
CE46-018	750746.220	2083804.000	0.0	0.3	Uranium-235	0.289	NA	0.094	8	pCi/g
CE46-018	750746.220	2083804.000	0.0	0.3	Uranium-238	3.819	NA	2.000	351	pCi/g
CE46-019	750749.220	2083803.884	0.0	0.3	Americium-241	3438.000	NA	0.023	76	pCi/g
CE46-019	750749.220	2083803.884	0.0	0.3	Plutonium-239/240	19596.600	NA	0.066	50	pCi/g
CE46-019	750749.220	2083803.884	0.0	0.3	Strontium	71.000	NA	48.940	613000	mg/kg
CE46-019	750749.220	2083803.884	0.0	0.3	Zinc	300.000	NA	73.760	307000	mg/kg
CE46-020	750750.720	2083791.860	0.0	0.3	Americium-241	0.429	NA	0.023	76	pCi/g
CE46-020	750750.720	2083791.860	0.0	0.3	Plutonium-239/240	2.448	NA	0.066	50	pCi/g
CE46-020	750750.720	2083791.860	0.0	0.3	Uranium-235	0.123	NA	0.094	8	pCi/g
CE46-021	750747.720	2083791.860	0.0	0.3	Uranium-235	0.175	NA	0.094	8	pCi/g
CF44-000	750356.701	2083736.254	0.0	0.5	Uranium-234	2.296	NA	2.253	300	pCi/g
CF44-000	750356.701	2083736.254	0.0	0.5	Uranium-235	0.143	NA	0.094	8	pCi/g
CF44-000	750356.701	2083736.254	0.0	0.5	Uranium-238	2.296	NA	2.000	351	pCi/g
CF44-000	750356.701	2083736.254	0.5	2.5	Uranium-235	0.123	NA	0.120	8	pCi/g
CF44-000	750356.701	2083736.254	0.5	2.5	Uranium-238	2.417	NA	1.490	351	pCi/g
CF44-001	750266.361	2083760.078	0.0	0.5	Uranium-234	2.879	NA	2.253	300	pCi/g
CF44-001	750266.361	2083760.078	0.0	0.5	Uranium-235	0.246	NA	0.094	8	pCi/g
CF44-001	750266.361	2083760.078	0.0	0.5	Uranium-238	2.879	NA	2.000	351	pCi/g
CF44-001	750266.361	2083760.078	0.5	2.5	Uranium-235	0.197	NA	0.120	8	pCi/g
CF44-002	750338.027	2083766.460	0.0	0.5	Americium-241	0.608	NA	0.023	76	pCi/g
CF44-002	750338.027	2083766.460	0.0	0.5	Plutonium-239/240	3.468	NA	0.066	50	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF44-002	750338.027	2083766.460	0.0	0.5	Uranium-235	0.143	NA	0.094	8	pCi/g
CF44-002	750338.027	2083766.460	0.5	2.5	Uranium-235	0.168	NA	0.120	8	pCi/g
CF44-006	750262.936	2083822.039	0.0	0.5	Uranium-235	0.145	NA	0.094	8	pCi/g
CF44-006	750262.936	2083822.039	0.0	0.5	Uranium-238	2.134	NA	2.000	351	pCi/g
CF44-006	750262.936	2083822.039	0.5	2.5	Uranium-238	1.696	NA	1.490	351	pCi/g
CF44-007	750246.046	2083860.678	0.0	0.5	Uranium-234	4.559	NA	2.253	300	pCi/g
CF44-007	750246.046	2083860.678	0.0	0.5	Uranium-235	0.280	NA	0.094	8	pCi/g
CF44-007	750246.046	2083860.678	0.0	0.5	Uranium-238	4.559	NA	2.000	351	pCi/g
CF44-007	750246.046	2083860.678	0.5	2.5	Uranium-234	4.922	NA	2.640	300	pCi/g
CF44-007	750246.046	2083860.678	0.5	2.5	Uranium-238	4.922	NA	1.490	351	pCi/g
CF44-008	750275.894	2083854.838	0.5	2.5	Uranium-235	0.148	NA	0.120	8	pCi/g
CF44-009	750351.585	2083861.198	0.0	0.5	Uranium-234	5.678	NA	2.253	300	pCi/g
CF44-009	750351.585	2083861.198	0.0	0.5	Uranium-235	0.260	NA	0.094	8	pCi/g
CF44-009	750351.585	2083861.198	0.0	0.5	Uranium-238	5.678	NA	2.000	351	pCi/g
CF44-010	750251.887	2083884.096	0.0	0.5	Uranium-235	0.130	NA	0.094	8	pCi/g
CF44-011	750251.490	2083912.685	0.0	0.5	Uranium-234	2.573	NA	2.253	300	pCi/g
CF44-011	750251.490	2083912.685	0.0	0.5	Uranium-235	0.285	NA	0.094	8	pCi/g
CF44-011	750251.490	2083912.685	0.0	0.5	Uranium-238	2.573	NA	2.000	351	pCi/g
CF44-011	750251.490	2083912.685	0.5	2.5	Uranium-234	4.650	NA	2.640	300	pCi/g
CF44-011	750251.490	2083912.685	0.5	2.5	Uranium-235	0.231	NA	0.120	8	pCi/g
CF44-011	750251.490	2083912.685	0.5	2.5	Uranium-238	4.650	NA	1.490	351	pCi/g
CF45-004	750368.314	2083831.819	0.0	0.5	Americium-241	0.622	NA	0.023	76	pCi/g
CF45-004	750368.314	2083831.819	0.0	0.5	Plutonium-239/240	3.547	NA	0.066	50	pCi/g
CF45-004	750368.314	2083831.819	0.0	0.5	Uranium-235	0.103	NA	0.094	8	pCi/g
CF45-005	750362.835	2083893.972	0.0	0.5	Uranium-234	4.243	NA	2.253	300	pCi/g
CF45-005	750362.835	2083893.972	0.0	0.5	Uranium-235	0.173	NA	0.094	8	pCi/g
CF45-005	750362.835	2083893.972	0.0	0.5	Uranium-238	4.243	NA	2.000	351	pCi/g
CF45-017	750348.155	2083933.274	0.0	0.5	Antimony	0.870	NA	0.470	409	mg/kg
CF45-017	750348.155	2083933.274	0.0	0.5	Uranium-234	4.257	NA	2.253	300	pCi/g
CF45-017	750348.155	2083933.274	0.0	0.5	Uranium-235	0.173	NA	0.094	8	pCi/g
CF45-017	750348.155	2083933.274	0.0	0.5	Uranium-238	4.257	NA	2.000	351	pCi/g
CF45-017	750348.155	2083933.274	0.0	0.5	Zinc	820.000	NA	73.760	307000	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF45-017	750348.155	2083933.274	0.5	2.5	Uranium-234	4.807	NA	2.640	300	pCi/g
CF45-017	750348.155	2083933.274	0.5	2.5	Uranium-235	0.291	NA	0.120	8	pCi/g
CF45-017	750348.155	2083933.274	0.5	2.5	Uranium-238	4.807	NA	1.490	351	pCi/g
CF46-004	750747.694	2083900.886	0.0	0.5	2-Methylnaphthalene	46.000	34.000	NA	20400000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Acenaphthene	450.000	33.000	NA	40800000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Anthracene	510.000	25.000	NA	204000000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Benzo(a)anthracene	1400.000	26.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Benzo(a)pyrene	850.000	43.000	NA	3490	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Benzo(b)fluoranthene	980.000	31.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Benzo(k)fluoranthene	1400.000	34.000	NA	349000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Chrysene	1500.000	30.000	NA	3490000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Dibenz(a,h)anthracene	360.000	26.000	NA	3490	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Dibenzofuran	130.000	39.000	NA	2950000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Fluoranthene	4000.000	24.000	NA	27200000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Fluorene	300.000	36.000	NA	40800000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Indeno(1,2,3-cd)pyrene	1000.000	24.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Mercury	0.390	NA	0.134	25200	mg/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Naphthalene	85.000	34.000	NA	3090000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Pyrene	4300.000	140.000	NA	22100000	ug/kg
CF46-004	750747.694	2083900.886	0.0	0.5	Uranium-234	5.260	NA	2.253	300	pCi/g
CF46-004	750747.694	2083900.886	0.0	0.5	Uranium-238	5.260	NA	2.000	351	pCi/g
CF46-004	750747.694	2083900.886	0.5	2.5	Acenaphthene	72.000	34.000	NA	40800000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Anthracene	81.000	26.000	NA	204000000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Benzo(a)anthracene	210.000	27.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Benzo(a)pyrene	150.000	44.000	NA	3490	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Benzo(b)fluoranthene	170.000	31.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Benzo(k)fluoranthene	220.000	35.000	NA	349000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Carbon Tetrachloride	11.400	5.340	NA	81500	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Chrysene	230.000	30.000	NA	3490000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Fluoranthene	580.000	25.000	NA	27200000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Fluorene	51.000	37.000	NA	40800000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Indeno(1,2,3-cd)pyrene	150.000	25.000	NA	34900	ug/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-004	750747.694	2083900.886	0.5	2.5	Naphthalene	7.550	5.340	NA	3090000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Pyrene	620.000	150.000	NA	22100000	ug/kg
CF46-004	750747.694	2083900.886	0.5	2.5	Uranium-235	0.153	NA	0.120	8	pCi/g
CF46-004	750747.694	2083900.886	2.5	4.5	Acenaphthene	72.000	35.000	NA	40800000	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Anthracene	110.000	27.000	NA	204000000	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Benzo(a)anthracene	160.000	28.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Benzo(a)pyrene	87.000	46.000	NA	3490	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Benzo(b)fluoranthene	120.000	33.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Benzo(k)fluoranthene	140.000	36.000	NA	349000	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Carbon Tetrachloride	39.800	5.290	NA	81500	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Chloroform	6.700	5.290	NA	19200	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Chrysene	180.000	32.000	NA	3490000	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Fluoranthene	380.000	26.000	NA	27200000	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Fluorene	60.000	39.000	NA	40800000	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Indeno(1,2,3-cd)pyrene	91.000	26.000	NA	34900	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Pyrene	440.000	150.000	NA	22100000	ug/kg
CF46-004	750747.694	2083900.886	2.5	4.5	Uranium-238	1.598	NA	1.490	351	pCi/g
CF46-004	750747.694	2083900.886	4.5	6.5	Carbon Tetrachloride	146.000	5.470	NA	81500	ug/kg
CF46-004	750747.694	2083900.886	4.5	6.5	Chloroform	15.000	5.470	NA	19200	ug/kg
CF46-004	750747.694	2083900.886	4.5	6.5	Uranium-235	0.152	NA	0.120	8	pCi/g
CF46-005	750747.641	2083921.729	0.0	0.5	Acenaphthene	100.000	34.000	NA	40800000	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Anthracene	96.000	26.000	NA	204000000	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Benzo(a)anthracene	510.000	28.000	NA	34900	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Benzo(a)pyrene	600.000	45.000	NA	3490	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Benzo(b)fluoranthene	550.000	32.000	NA	34900	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Benzo(k)fluoranthene	510.000	36.000	NA	349000	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Chrysene	570.000	31.000	NA	3490000	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Fluoranthene	980.000	25.000	NA	27200000	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Indeno(1,2,3-cd)pyrene	480.000	25.000	NA	34900	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Pyrene	1200.000	150.000	NA	22100000	ug/kg
CF46-005	750747.641	2083921.729	0.0	0.5	Uranium-235	0.158	NA	0.094	8	pCi/g
CF46-005	750747.641	2083921.729	0.0	0.5	Uranium-238	2.113	NA	2.000	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-005	750747.641	2083921.729	0.5	2.5	Uranium-234	4.478	NA	2.640	300	pCi/g
CF46-005	750747.641	2083921.729	0.5	2.5	Uranium-235	0.225	NA	0.120	8	pCi/g
CF46-005	750747.641	2083921.729	0.5	2.5	Uranium-238	4.478	NA	1.490	351	pCi/g
CF46-005	750747.641	2083921.729	2.5	4.5	Uranium-235	0.149	NA	0.120	8	pCi/g
CF46-006	750719.754	2083901.557	0.0	0.5	Acenaphthene	44.000	33.000	NA	40800000	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Aluminum	20000.000	NA	16902.000	228000	mg/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Anthracene	41.000	26.000	NA	204000000	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Barium	200.000	NA	141.260	26400	mg/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Benzo(a)anthracene	180.000	27.000	NA	34900	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Benzo(a)pyrene	210.000	43.000	NA	3490	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Benzo(b)fluoranthene	160.000	31.000	NA	34900	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Benzo(k)fluoranthene	180.000	34.000	NA	349000	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Chromium	18.000	NA	16.990	268	mg/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Chrysene	230.000	30.000	NA	3490000	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Fluoranthene	570.000	24.000	NA	27200000	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Lithium	12.000	NA	11.550	20400	mg/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Nickel	15.000	NA	14.910	20400	mg/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Pyrene	410.000	140.000	NA	22100000	ug/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Strontium	64.000	NA	48.940	613000	mg/kg
CF46-006	750719.754	2083901.557	0.0	0.5	Uranium-234	4.867	NA	2.253	300	pCi/g
CF46-006	750719.754	2083901.557	0.0	0.5	Uranium-235	0.193	NA	0.094	8	pCi/g
CF46-006	750719.754	2083901.557	0.0	0.5	Uranium-238	4.867	NA	2.000	351	pCi/g
CF46-006	750719.754	2083901.557	0.5	2.5	Fluoranthene	59.000	25.000	NA	27200000	ug/kg
CF46-006	750719.754	2083901.557	0.5	2.5	Uranium-235	0.141	NA	0.120	8	pCi/g
CF46-006	750719.754	2083901.557	2.5	4.5	Benzo(a)anthracene	50.000	27.000	NA	34900	ug/kg
CF46-006	750719.754	2083901.557	2.5	4.5	Benzo(b)fluoranthene	41.000	31.000	NA	34900	ug/kg
CF46-006	750719.754	2083901.557	2.5	4.5	Benzo(k)fluoranthene	37.000	35.000	NA	349000	ug/kg
CF46-006	750719.754	2083901.557	2.5	4.5	Carbon Tetrachloride	6.290	5.550	NA	81500	ug/kg
CF46-006	750719.754	2083901.557	2.5	4.5	Chrysene	58.000	30.000	NA	3490000	ug/kg
CF46-006	750719.754	2083901.557	2.5	4.5	Fluoranthene	120.000	25.000	NA	27200000	ug/kg
CF46-006	750719.754	2083901.557	2.5	4.5	Uranium-235	0.154	NA	0.120	8	pCi/g
CF46-006	750719.754	2083901.557	2.5	4.5	Uranium-238	2.205	NA	1.490	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-006	750719.754	2083901.557	4.5	6.5	Uranium-234	4.645	NA	2.640	300	pCi/g
CF46-006	750719.754	2083901.557	4.5	6.5	Uranium-235	0.234	NA	0.120	8	pCi/g
CF46-006	750719.754	2083901.557	4.5	6.5	Uranium-238	4.645	NA	1.490	351	pCi/g
CF46-007	750705.867	2083919.104	0.0	0.5	Acenaphthene	86.000	34.000	NA	40800000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Aluminum	17000.000	NA	16902.000	228000	mg/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Americium-241	0.269	NA	0.023	76	pCi/g
CF46-007	750705.867	2083919.104	0.0	0.5	Anthracene	83.000	26.000	NA	204000000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Benzo(a)anthracene	260.000	28.000	NA	34900	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Benzo(a)pyrene	290.000	45.000	NA	3490	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Benzo(b)fluoranthene	230.000	32.000	NA	34900	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Benzo(k)fluoranthene	240.000	36.000	NA	349000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	bis(2-Ethylhexyl)phthalate	91.000	80.000	NA	1970000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Chrysene	330.000	31.000	NA	3490000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Fluoranthene	710.000	25.000	NA	27200000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Fluorene	53.000	38.000	NA	40800000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Plutonium-239/240	1.530	NA	0.066	50	pCi/g
CF46-007	750705.867	2083919.104	0.0	0.5	Pyrene	610.000	150.000	NA	22100000	ug/kg
CF46-007	750705.867	2083919.104	0.0	0.5	Uranium-235	0.148	NA	0.094	8	pCi/g
CF46-007	750705.867	2083919.104	0.5	2.5	Aluminum	46000.000	NA	35373.170	228000	mg/kg
CF46-007	750705.867	2083919.104	0.5	2.5	Uranium-234	4.097	NA	2.640	300	pCi/g
CF46-007	750705.867	2083919.104	0.5	2.5	Uranium-235	0.218	NA	0.120	8	pCi/g
CF46-007	750705.867	2083919.104	0.5	2.5	Uranium-238	4.097	NA	1.490	351	pCi/g
CF46-007	750705.867	2083919.104	2.5	4.5	Uranium-234	4.296	NA	2.640	300	pCi/g
CF46-007	750705.867	2083919.104	2.5	4.5	Uranium-235	0.218	NA	0.120	8	pCi/g
CF46-007	750705.867	2083919.104	2.5	4.5	Uranium-238	4.296	NA	1.490	351	pCi/g
CF46-008	750691.643	2083898.129	0.0	0.5	Acenaphthene	140.000	34.000	NA	40800000	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Americium-241	1.053	NA	0.023	76	pCi/g
CF46-008	750691.643	2083898.129	0.0	0.5	Anthracene	150.000	26.000	NA	204000000	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Benzo(a)anthracene	480.000	27.000	NA	34900	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Benzo(a)pyrene	530.000	45.000	NA	3490	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Benzo(b)fluoranthene	400.000	32.000	NA	34900	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Benzo(k)fluoranthene	490.000	35.000	NA	349000	ug/kg



Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-008	750691.643	2083898.129	0.0	0.5	bis(2-Ethylhexyl)phthalate	580.000	80.000	NA	1970000	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Chromium	21.000	NA	16.990	268	mg/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Chrysene	580.000	31.000	NA	3490000	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Copper	52.000	NA	18.060	40900	mg/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Dibenz(a,h)anthracene	160.000	27.000	NA	3490	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Fluoranthene	1400.000	25.000	NA	27200000	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Fluorene	93.000	38.000	NA	40800000	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Indeno(1,2,3-cd)pyrene	380.000	25.000	NA	34900	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Lead	79.000	NA	54.620	1000	mg/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Plutonium-239/240	6.002	NA	0.066	50	pCi/g
CF46-008	750691.643	2083898.129	0.0	0.5	Pyrene	990.000	150.000	NA	22100000	ug/kg
CF46-008	750691.643	2083898.129	0.0	0.5	Zinc	290.000	NA	73.760	307000	mg/kg
CF46-008	750691.643	2083898.129	0.5	2.5	Uranium-234	4.968	NA	2.640	300	pCi/g
CF46-008	750691.643	2083898.129	0.5	2.5	Uranium-235	0.257	NA	0.120	8	pCi/g
CF46-008	750691.643	2083898.129	0.5	2.5	Uranium-238	4.968	NA	1.490	351	pCi/g
CF46-008	750691.643	2083898.129	2.5	4.5	Arsenic	20.000	NA	13.140	22.2	mg/kg
CF46-008	750691.643	2083898.129	2.5	4.5	Barium	290.000	NA	289.380	26400	mg/kg
CF46-008	750691.643	2083898.129	2.5	4.5	Copper	48.000	NA	38.210	40900	mg/kg
CF46-008	750691.643	2083898.129	2.5	4.5	Lead	30.000	NA	24.970	1000	mg/kg
CF46-008	750691.643	2083898.129	2.5	4.5	Manganese	1700.000	NA	901.620	3480	mg/kg
CF46-008	750691.643	2083898.129	2.5	4.5	Uranium-234	3.118	NA	2.640	300	pCi/g
CF46-008	750691.643	2083898.129	2.5	4.5	Uranium-238	3.118	NA	1.490	351	pCi/g
CF46-008	750691.643	2083898.129	2.5	4.5	Vanadium	100.000	NA	88.490	7150	mg/kg
CF46-008	750691.643	2083898.129	4.5	6.5	Uranium-234	4.325	NA	2.640	300	pCi/g
CF46-008	750691.643	2083898.129	4.5	6.5	Uranium-235	0.250	NA	0.120	8	pCi/g
CF46-008	750691.643	2083898.129	4.5	6.5	Uranium-238	4.325	NA	1.490	351	pCi/g
CF46-009	750690.993	2083917.901	0.0	0.5	2-Methylnaphthalene	40.000	36.000	NA	20400000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Acenaphthene	210.000	35.000	NA	40800000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Anthracene	270.000	27.000	NA	204000000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Benzo(a)anthracene	490.000	28.000	NA	34900	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Benzo(a)pyrene	470.000	45.000	NA	3490	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Benzo(b)fluoranthene	380.000	33.000	NA	34900	ug/kg

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-009	750690.993	2083917.901	0.0	0.5	Benzo(k)fluoranthene	370.000	36.000	NA	349000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	bis(2-Ethylhexyl)phthalate	920.000	81.000	NA	1970000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Chrysene	520.000	31.000	NA	3490000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Cobalt	11.000	NA	10.910	1550	mg/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Dibenz(a,h)anthracene	120.000	28.000	NA	3490	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Dibenzofuran	80.000	41.000	NA	2950000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Fluoranthene	1400.000	26.000	NA	27200000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Fluorene	160.000	38.000	NA	40800000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Indeno(1,2,3-cd)pyrene	300.000	26.000	NA	34900	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Naphthalene	110.000	36.000	NA	3090000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Pyrene	1100.000	150.000	NA	22100000	ug/kg
CF46-009	750690.993	2083917.901	0.0	0.5	Uranium-235	0.132	NA	0.094	8	pCi/g
CF46-009	750690.993	2083917.901	0.5	2.5	Uranium-235	0.271	NA	0.120	8	pCi/g
CF46-009	750690.993	2083917.901	0.5	2.5	Uranium-238	1.591	NA	1.490	351	pCi/g
CF46-010	750699.183	2083912.384	0.0	0.5	2-Methylnaphthalene	55.000	36.000	NA	20400000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Acenaphthene	450.000	35.000	NA	40800000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Aluminum	17000.000	NA	16902.000	228000	mg/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Americium-241	1.106	NA	0.023	76	pCi/g
CF46-010	750699.183	2083912.384	0.0	0.5	Anthracene	490.000	27.000	NA	204000000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Benzo(a)anthracene	1200.000	28.000	NA	34900	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Benzo(a)pyrene	1300.000	45.000	NA	3490	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Benzo(b)fluoranthene	1000.000	32.000	NA	34900	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Benzo(k)fluoranthene	1000.000	36.000	NA	349000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	bis(2-Ethylhexyl)phthalate	190.000	81.000	NA	1970000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Chromium	18.000	NA	16.990	268	mg/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Chrysene	1300.000	31.000	NA	3490000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Dibenzofuran	130.000	41.000	NA	2950000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Fluoranthene	3600.000	25.000	NA	27200000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Fluorene	290.000	38.000	NA	40800000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Indeno(1,2,3-cd)pyrene	910.000	25.000	NA	34900	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Naphthalene	120.000	36.000	NA	3090000	ug/kg
CF46-010	750699.183	2083912.384	0.0	0.5	Plutonium-239/240	6.304	NA	0.066	50	pCi/g

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-010	750699.183	2083912.384	0.0	0.5	Pyrene	2600.000	150.000	NA	22100000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Acenaphthene	58.000	35.000	NA	40800000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Americium-241	0.873	NA	0.020	76	pCi/g
CF46-010	750699.183	2083912.384	0.5	2.5	Anthracene	72.000	27.000	NA	204000000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Benzo(a)anthracene	170.000	28.000	NA	34900	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Benzo(a)pyrene	170.000	45.000	NA	3490	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Benzo(b)fluoranthene	120.000	33.000	NA	34900	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Benzo(k)fluoranthene	140.000	36.000	NA	349000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Chrysene	190.000	31.000	NA	3490000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Fluoranthene	440.000	26.000	NA	27200000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Fluorene	46.000	38.000	NA	40800000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Plutonium-239/240	4.978	NA	0.020	50	pCi/g
CF46-010	750699.183	2083912.384	0.5	2.5	Pyrene	380.000	150.000	NA	22100000	ug/kg
CF46-010	750699.183	2083912.384	0.5	2.5	Uranium-234	4.888	NA	2.640	300	pCi/g
CF46-010	750699.183	2083912.384	0.5	2.5	Uranium-235	0.197	NA	0.120	8	pCi/g
CF46-010	750699.183	2083912.384	0.5	2.5	Uranium-238	4.888	NA	1.490	351	pCi/g
CF46-010	750699.183	2083912.384	2.5	4.5	Benzo(a)anthracene	40.000	28.000	NA	34900	ug/kg
CF46-010	750699.183	2083912.384	2.5	4.5	Chrysene	46.000	31.000	NA	3490000	ug/kg
CF46-010	750699.183	2083912.384	2.5	4.5	Fluoranthene	120.000	25.000	NA	27200000	ug/kg
CF46-011	750725.790	2083910.984	0.0	0.5	Benzo(a)anthracene	75.000	27.000	NA	34900	ug/kg
CF46-011	750725.790	2083910.984	0.0	0.5	Benzo(b)fluoranthene	67.000	31.000	NA	34900	ug/kg
CF46-011	750725.790	2083910.984	0.0	0.5	Benzo(k)fluoranthene	66.000	34.000	NA	349000	ug/kg
CF46-011	750725.790	2083910.984	0.0	0.5	Chrysene	96.000	30.000	NA	3490000	ug/kg
CF46-011	750725.790	2083910.984	0.0	0.5	Fluoranthene	180.000	24.000	NA	27200000	ug/kg
CF46-011	750725.790	2083910.984	0.0	0.5	Pyrene	170.000	140.000	NA	22100000	ug/kg
CF46-011	750725.790	2083910.984	0.0	0.5	Uranium-234	3.588	NA	2.253	300	pCi/g
CF46-011	750725.790	2083910.984	0.0	0.5	Uranium-235	0.248	NA	0.094	8	pCi/g
CF46-011	750725.790	2083910.984	0.0	0.5	Uranium-238	3.588	NA	2.000	351	pCi/g
CF46-011	750725.790	2083910.984	0.5	2.5	Aluminum	45000.000	NA	35373.170	228000	mg/kg
CF46-011	750725.790	2083910.984	0.5	2.5	Arsenic	15.000	NA	13.140	22.2	mg/kg
CF46-011	750725.790	2083910.984	2.5	4.5	Aluminum	37000.000	NA	35373.170	228000	mg/kg
CF46-011	750725.790	2083910.984	2.5	4.5	Uranium-238	1.716	NA	1.490	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-011	750725.790	2083910.984	4.5	6.5	Uranium-234	4.451	NA	2.640	300	pCi/g
CF46-011	750725.790	2083910.984	4.5	6.5	Uranium-235	0.171	NA	0.120	8	pCi/g
CF46-011	750725.790	2083910.984	4.5	6.5	Uranium-238	4.451	NA	1.490	351	pCi/g
CF46-012	750742.242	2083778.652	1.1	1.6	Aluminum	17000.000	NA	16902.000	228000	mg/kg
CF46-012	750742.242	2083778.652	1.1	1.6	Chromium	18.000	NA	16.990	268	mg/kg
CF46-012	750742.242	2083778.652	1.1	1.6	Nickel	15.000	NA	14.910	20400	mg/kg
CF46-012	750742.242	2083778.652	1.1	1.6	Uranium-234	3.761	NA	2.253	300	pCi/g
CF46-012	750742.242	2083778.652	1.1	1.6	Uranium-235	0.226	NA	0.094	8	pCi/g
CF46-012	750742.242	2083778.652	1.1	1.6	Uranium-238	3.761	NA	2.000	351	pCi/g
CF46-012	750742.242	2083778.652	1.6	2.6	Chromium	140.000	NA	68.270	268	mg/kg
CF46-012	750742.242	2083778.652	1.6	2.6	Nickel	71.000	NA	62.210	20400	mg/kg
CF46-012	750742.242	2083778.652	1.6	2.6	Uranium-235	0.138	NA	0.120	8	pCi/g
CF46-015	750716.570	2083825.240	1.3	1.8	Uranium-235	0.163	NA	0.094	8	pCi/g
CF46-015	750716.570	2083825.240	1.8	3.8	Uranium-235	0.129	NA	0.120	8	pCi/g
CF46-016	750746.350	2083825.240	1.1	1.6	Aluminum	24000.000	NA	16902.000	228000	mg/kg
CF46-016	750746.350	2083825.240	1.1	1.6	Beryllium	1.100	NA	0.966	921	mg/kg
CF46-016	750746.350	2083825.240	1.1	1.6	Chromium	21.000	NA	16.990	268	mg/kg
CF46-016	750746.350	2083825.240	1.1	1.6	Copper	22.000	NA	18.060	40900	mg/kg
CF46-016	750746.350	2083825.240	1.1	1.6	Iron	21000.000	NA	18037.000	307000	mg/kg
CF46-016	750746.350	2083825.240	1.1	1.6	Nickel	19.000	NA	14.910	20400	mg/kg
CF46-016	750746.350	2083825.240	1.1	1.6	Strontium	49.000	NA	48.940	613000	mg/kg
CF46-016	750746.350	2083825.240	1.1	1.6	Uranium-234	2.327	NA	2.253	300	pCi/g
CF46-016	750746.350	2083825.240	1.1	1.6	Uranium-235	0.249	NA	0.094	8	pCi/g
CF46-016	750746.350	2083825.240	1.1	1.6	Uranium-238	2.327	NA	2.000	351	pCi/g
CF46-016	750746.350	2083825.240	1.6	3.6	Barium	630.000	NA	289.380	26400	mg/kg
CF46-016	750746.350	2083825.240	1.6	3.6	Uranium-235	0.237	NA	0.120	8	pCi/g
CF46-016	750746.350	2083825.240	1.6	3.6	Uranium-238	1.797	NA	1.490	351	pCi/g
CF46-020	750675.522	2083801.841	0.0	0.5	Benzo(a)anthracene	130.000	25.000	NA	34900	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Benzo(a)pyrene	140.000	41.000	NA	3490	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Benzo(b)fluoranthene	94.000	30.000	NA	34900	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Benzo(k)fluoranthene	130.000	33.000	NA	349000	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Chrysene	150.000	29.000	NA	3490000	ug/kg

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW/AL	Unit
CF46-020	750675.522	2083801.841	0.0	0.5	Dibenz(a,h)anthracene	52.000	25.000	NA	3490	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Fluoranthene	320.000	23.000	NA	27200000	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Indeno(1,2,3-cd)pyrene	100.000	23.000	NA	34900	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Pyrene	270.000	140.000	NA	22100000	ug/kg
CF46-020	750675.522	2083801.841	0.0	0.5	Uranium-234	4.114	NA	2.253	300	pCi/g
CF46-020	750675.522	2083801.841	0.0	0.5	Uranium-235	0.235	NA	0.094	8	pCi/g
CF46-020	750675.522	2083801.841	0.0	0.5	Uranium-238	4.114	NA	2.000	351	pCi/g
CF46-020	750675.522	2083801.841	0.5	2.5	Uranium-234	3.574	NA	2.640	300	pCi/g
CF46-020	750675.522	2083801.841	0.5	2.5	Uranium-235	0.219	NA	0.120	8	pCi/g
CF46-020	750675.522	2083801.841	0.5	2.5	Uranium-238	3.574	NA	1.490	351	pCi/g
CF46-020	750675.522	2083801.841	2.5	4.5	Uranium-235	0.133	NA	0.120	8	pCi/g
CF46-020	750675.522	2083801.841	4.5	6.5	Uranium-235	0.195	NA	0.120	8	pCi/g
CF46-021	750652.781	2083823.834	0.0	0.5	2-Methylnaphthalene	160.000	35.000	NA	20400000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Acenaphthene	650.000	34.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Aluminum	24000.000	NA	16902.000	228000	mg/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Anthracene	710.000	26.000	NA	204000000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Benzo(a)anthracene	1000.000	27.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Benzo(a)pyrene	1000.000	44.000	NA	3490	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Benzo(b)fluoranthene	740.000	32.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Benzo(k)fluoranthene	910.000	35.000	NA	349000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Beryllium	1.500	NA	0.966	921	mg/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Chromium	22.000	NA	16.990	268	mg/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Chrysene	1000.000	31.000	NA	3490000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Dibenz(a,h)anthracene	200.000	27.000	NA	3490	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Dibenzofuran	270.000	40.000	NA	2950000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Fluoranthene	3000.000	25.000	NA	27200000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Fluorene	520.000	38.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Indeno(1,2,3-cd)pyrene	610.000	25.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Iron	21000.000	NA	18037.000	307000	mg/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Naphthalene	490.000	35.000	NA	3090000	ug/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Nickel	17.000	NA	14.910	20400	mg/kg
CF46-021	750652.781	2083823.834	0.0	0.5	Pyrene	2500.000	150.000	NA	22100000	ug/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-021	750652.781	2083823.834	0.0	0.5	Uranium-234	4.064	NA	2.253	300	pCi/g
CF46-021	750652.781	2083823.834	0.0	0.5	Uranium-235	0.231	NA	0.094	8	pCi/g
CF46-021	750652.781	2083823.834	0.0	0.5	Uranium-238	4.064	NA	2.000	351	pCi/g
CF46-021	750652.781	2083823.834	0.5	2.5	2-Methylnaphthalene	77.000	34.000	NA	20400000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Acenaphthene	530.000	33.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Anthracene	650.000	25.000	NA	204000000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Benzo(a)anthracene	1200.000	26.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Benzo(a)pyrene	1200.000	43.000	NA	3490	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Benzo(b)fluoranthene	900.000	31.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Benzo(k)fluoranthene	970.000	34.000	NA	349000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Chrysene	1200.000	30.000	NA	3490000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Dibenz(a,h)anthracene	240.000	26.000	NA	3490	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Dibenzofuran	170.000	39.000	NA	2950000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Fluoranthene	3400.000	24.000	NA	27200000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Fluorene	400.000	36.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Indeno(1,2,3-cd)pyrene	710.000	24.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Pyrene	2800.000	140.000	NA	22100000	ug/kg
CF46-021	750652.781	2083823.834	0.5	2.5	Uranium-234	3.975	NA	2.640	300	pCi/g
CF46-021	750652.781	2083823.834	0.5	2.5	Uranium-235	0.245	NA	0.120	8	pCi/g
CF46-021	750652.781	2083823.834	0.5	2.5	Uranium-238	3.975	NA	1.490	351	pCi/g
CF46-021	750652.781	2083823.834	2.5	4.5	2-Methylnaphthalene	830.000	35.000	NA	20400000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	3,3'-Dichlorobenzidine	160.000	110.000	NA	61300	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Acenaphthene	3400.000	34.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Anthracene	7100.000	26.000	NA	204000000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Benzo(a)anthracene	7300.000	140.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Benzo(a)pyrene	5200.000	44.000	NA	3490	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Benzo(b)fluoranthene	5200.000	32.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Benzo(k)fluoranthene	4500.000	35.000	NA	349000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Chrysene	7400.000	30.000	NA	3490000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Dibenz(a,h)anthracene	780.000	27.000	NA	3490	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Dibenzofuran	2100.000	39.000	NA	2950000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Fluoranthene	27000.000	120.000	NA	27200000	ug/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-021	750652.781	2083823.834	2.5	4.5	Fluorene	4000.000	37.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Indeno(1,2,3-cd)pyrene	2400.000	25.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Naphthalene	2680.000	105.000	NA	3090000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	n-Nitrosodiphenylamine	220.000	30.000	NA	7810000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Pyrene	18000.000	730.000	NA	22100000	ug/kg
CF46-021	750652.781	2083823.834	2.5	4.5	Uranium-235	0.170	NA	0.120	8	pCi/g
CF46-021	750652.781	2083823.834	2.5	4.5	Xylene	230.000	209.000	NA	2040000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	2-Methylnaphthalene	900.000	32.000	NA	20400000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Acenaphthene	3600.000	31.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Anthracene	7300.000	120.000	NA	204000000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Benzo(a)anthracene	8000.000	120.000	NA	34900	ug/kg
<b>CF46-021</b>	<b>750652.781</b>	<b>2083823.834</b>	<b>4.5</b>	<b>6.5</b>	<b>Benzo(a)pyrene</b>	<b>5200.000</b>	<b>40.000</b>	<b>NA</b>	<b>3490</b>	<b>ug/kg</b>
CF46-021	750652.781	2083823.834	4.5	6.5	Benzo(b)fluoranthene	5500.000	29.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Benzo(k)fluoranthene	4400.000	32.000	NA	349000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Chrysene	7500.000	140.000	NA	3490000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Dibenz(a,h)anthracene	770.000	25.000	NA	3490	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Dibenzofuran	2300.000	36.000	NA	2950000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Fluoranthene	31000.000	110.000	NA	27200000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Fluorene	4500.000	34.000	NA	40800000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Indeno(1,2,3-cd)pyrene	2300.000	23.000	NA	34900	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Naphthalene	393.000	23.600	NA	3090000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	n-Nitrosodiphenylamine	250.000	28.000	NA	7810000	ug/kg
CF46-021	750652.781	2083823.834	4.5	6.5	Pyrene	21000.000	670.000	NA	22100000	ug/kg
CF46-022	750673.629	2083766.693	4.5	6.5	Carbon Tetrachloride	1.800	1.400	NA	81500	ug/kg
CF46-022	750673.629	2083766.693	4.5	6.5	Chloroform	3.300	1.100	NA	19200	ug/kg
CF46-022	750673.629	2083766.693	4.5	6.5	Plutonium-239/240	0.170	NA	0.020	50	pCi/g
CF46-023	750648.535	2083788.038	0.0	0.5	Aluminum	24000.000	NA	16902.000	228000	mg/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Antimony	0.500	NA	0.470	409	mg/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Benzo(a)anthracene	180.000	26.000	NA	34900	ug/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Benzo(a)pyrene	210.000	43.000	NA	3490	ug/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Benzo(b)fluoranthene	240.000	31.000	NA	34900	ug/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Beryllium	1.200	NA	0.966	921	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-023	750648.535	2083788.038	0.0	0.5	Chrysene	190.000	29.000	NA	3490000	ug/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Fluoranthene	380.000	24.000	NA	27200000	ug/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Indeno(1,2,3-cd)pyrene	140.000	24.000	NA	34900	ug/kg
CF46-023	750648.535	2083788.038	0.0	0.5	Pyrene	360.000	140.000	NA	22100000	ug/kg
CF46-023	750648.535	2083788.038	4.5	6.5	Uranium-238	1.636	NA	1.490	351	pCi/g
CF46-024	750637.113	2083814.658	0.0	0.5	2-Methylnaphthalene	69.000	36.000	NA	20400000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Acenaphthene	290.000	35.000	NA	40800000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Aluminum	21000.000	NA	16902.000	228000	mg/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Anthracene	410.000	27.000	NA	204000000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Benzo(a)anthracene	640.000	28.000	NA	34900	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Benzo(a)pyrene	520.000	46.000	NA	3490	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Benzo(b)fluoranthene	610.000	33.000	NA	34900	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Chromium	18.000	NA	16.990	268	mg/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Chrysene	610.000	32.000	NA	3490000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Dibenz(a,h)anthracene	89.000	28.000	NA	3490	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Dibenzofuran	140.000	41.000	NA	2950000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Fluoranthene	1800.000	26.000	NA	27200000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Fluorene	260.000	39.000	NA	40800000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Indeno(1,2,3-cd)pyrene	250.000	26.000	NA	34900	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Iron	25000.000	NA	18037.000	307000	mg/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Lithium	16.000	NA	11.550	20400	mg/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Mercury	48.000	NA	0.134	25200	mg/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Nickel	15.000	NA	14.910	20400	mg/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Pyrene	1400.000	150.000	NA	22100000	ug/kg
CF46-024	750637.113	2083814.658	0.0	0.5	Uranium-235	0.159	NA	0.094	8	pCi/g
CF46-024	750637.113	2083814.658	0.0	0.5	Zinc	110.000	NA	73.760	307000	mg/kg
CF46-024	750637.113	2083814.658	0.5	2.5	Fluoranthene	64.000	27.000	NA	27200000	ug/kg
CF46-024	750637.113	2083814.658	0.5	2.5	Uranium-235	0.233	NA	0.120	8	pCi/g
CF46-024	750637.113	2083814.658	4.5	6.5	Uranium-234	4.075	NA	2.640	300	pCi/g
CF46-024	750637.113	2083814.658	4.5	6.5	Uranium-235	0.192	NA	0.120	8	pCi/g
CF46-024	750637.113	2083814.658	4.5	6.5	Uranium-238	4.075	NA	1.490	351	pCi/g
CF46-025	750633.378	2083789.945	0.0	0.5	Aluminum	45000.000	NA	16902.000	228000	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-025	750633.378	2083789.945	0.0	0.5	Arsenic	11.000	NA	10.090	22.2	mg/kg
CF46-025	750633.378	2083789.945	0.0	0.5	Beryllium	2.100	NA	0.966	921	mg/kg
CF46-025	750633.378	2083789.945	0.0	0.5	Chromium	33.000	NA	16.990	268	mg/kg
CF46-025	750633.378	2083789.945	0.0	0.5	Copper	24.000	NA	18.060	40900	mg/kg
CF46-025	750633.378	2083789.945	0.0	0.5	Iron	27000.000	NA	18037.000	307000	mg/kg
CF46-025	750633.378	2083789.945	0.0	0.5	Lithium	33.000	NA	11.550	20400	mg/kg
CF46-025	750633.378	2083789.945	0.0	0.5	Nickel	32.000	NA	14.910	20400	mg/kg
CF46-025	750633.378	2083789.945	0.0	0.5	Vanadium	58.000	NA	45.590	7150	mg/kg
CF46-025	750633.378	2083789.945	2.5	4.5	Uranium-234	3.975	NA	2.640	300	pCi/g
CF46-025	750633.378	2083789.945	2.5	4.5	Uranium-235	0.277	NA	0.120	8	pCi/g
CF46-025	750633.378	2083789.945	2.5	4.5	Uranium-238	3.975	NA	1.490	351	pCi/g
CF46-025	750633.378	2083789.945	4.5	6.5	Arsenic	38.000	NA	13.140	22.2	mg/kg
CF46-025	750633.378	2083789.945	4.5	6.5	Copper	72.000	NA	38.210	40900	mg/kg
CF46-025	750633.378	2083789.945	4.5	6.5	Iron	92000.000	NA	41046.520	307000	mg/kg
CF46-025	750633.378	2083789.945	4.5	6.5	Lead	30.000	NA	24.970	1000	mg/kg
CF46-025	750633.378	2083789.945	4.5	6.5	Manganese	1800.000	NA	901.620	3480	mg/kg
CF46-025	750633.378	2083789.945	4.5	6.5	Uranium-234	3.696	NA	2.640	300	pCi/g
CF46-025	750633.378	2083789.945	4.5	6.5	Uranium-235	0.227	NA	0.120	8	pCi/g
CF46-025	750633.378	2083789.945	4.5	6.5	Uranium-238	3.696	NA	1.490	351	pCi/g
CF46-025	750633.378	2083789.945	4.5	6.5	Vanadium	200.000	NA	88.490	7150	mg/kg
CF46-026	750648.678	2083780.311	0.0	0.5	Aluminum	21000.000	NA	16902.000	228000	mg/kg
CF46-026	750648.678	2083780.311	0.0	0.5	Beryllium	1.100	NA	0.966	921	mg/kg
CF46-026	750648.678	2083780.311	0.0	0.5	Uranium-234	2.797	NA	2.253	300	pCi/g
CF46-026	750648.678	2083780.311	0.0	0.5	Uranium-235	0.226	NA	0.094	8	pCi/g
CF46-026	750648.678	2083780.311	0.0	0.5	Uranium-238	2.797	NA	2.000	351	pCi/g
CF46-026	750648.678	2083780.311	4.5	6.5	Uranium-238	1.551	NA	1.490	351	pCi/g
CF46-027	750673.163	2083779.420	0.0	0.5	Aluminum	19000.000	NA	16902.000	228000	mg/kg
CF46-027	750673.163	2083779.420	0.0	0.5	Beryllium	1.100	NA	0.966	921	mg/kg
CF46-027	750673.163	2083779.420	0.0	0.5	Nickel	17.000	NA	14.910	20400	mg/kg
CF46-027	750673.163	2083779.420	0.0	0.5	Uranium-234	3.966	NA	2.253	300	pCi/g
CF46-027	750673.163	2083779.420	0.0	0.5	Uranium-235	0.176	NA	0.094	8	pCi/g
CF46-027	750673.163	2083779.420	0.0	0.5	Uranium-238	3.966	NA	2.000	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-027	750673.163	2083779.420	0.5	2.5	Carbon Tetrachloride	24.300	5.650	NA	81500	ug/kg
CF46-027	750673.163	2083779.420	0.5	2.5	Uranium-234	3.479	NA	2.640	300	pCi/g
CF46-027	750673.163	2083779.420	0.5	2.5	Uranium-235	0.178	NA	0.120	8	pCi/g
CF46-027	750673.163	2083779.420	0.5	2.5	Uranium-238	3.479	NA	1.490	351	pCi/g
CF46-027	750673.163	2083779.420	2.5	4.5	Uranium-234	3.986	NA	2.640	300	pCi/g
CF46-027	750673.163	2083779.420	2.5	4.5	Uranium-235	0.189	NA	0.120	8	pCi/g
CF46-027	750673.163	2083779.420	2.5	4.5	Uranium-238	3.986	NA	1.490	351	pCi/g
CF46-027	750673.163	2083779.420	4.5	6.5	Arsenic	44.000	NA	13.140	22.2	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Chromium	11000.000	NA	68.270	268	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Cobalt	40.000	NA	29.040	1550	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Copper	710.000	NA	38.210	40900	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Iron	290000.000	NA	41046.520	307000	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Manganese	2200.000	NA	901.620	3480	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Molybdenum	4100.000	NA	25.610	5110	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Nickel	670.000	NA	62.210	20400	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Uranium, Total	4.900	NA	3.040	2750	mg/kg
CF46-027	750673.163	2083779.420	4.5	6.5	Uranium-235	0.171	NA	0.120	8	pCi/g
CF46-027	750673.163	2083779.420	4.5	6.5	Uranium-238	2.451	NA	1.490	351	pCi/g
CF46-027	750673.163	2083779.420	4.5	6.5	Vanadium	740.000	NA	88.490	7150	mg/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Acenaphthene	76.000	32.000	NA	40800000	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Anthracene	95.000	25.000	NA	204000000	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Benzo(a)anthracene	250.000	26.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Benzo(a)pyrene	290.000	42.000	NA	3490	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Benzo(b)fluoranthene	220.000	30.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Benzo(k)fluoranthene	230.000	33.000	NA	349000	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Chrysene	280.000	29.000	NA	3490000	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Dibenz(a,h)anthracene	73.000	26.000	NA	3490	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Fluoranthene	600.000	24.000	NA	27200000	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Fluorene	53.000	35.000	NA	40800000	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Indeno(1,2,3-cd)pyrene	190.000	24.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Pyrene	510.000	140.000	NA	22100000	ug/kg
CF46-028	750661.313	2083865.683	0.0	0.5	Zinc	82.000	NA	73.760	307000	mg/kg

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-028	750661.313	2083865.683	0.5	2.5	Acenaphthene	42.000	34.000	NA	40800000	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Acetone	25.000	5.300	NA	102000000	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Anthracene	60.000	26.000	NA	204000000	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Benzo(a)anthracene	80.000	27.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Benzo(a)pyrene	81.000	45.000	NA	3490	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Chrysene	85.000	31.000	NA	3490000	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Fluoranthene	200.000	25.000	NA	27200000	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Naphthalene	1.800	0.980	NA	3090000	ug/kg
CF46-028	750661.313	2083865.683	0.5	2.5	Pyrene	200.000	150.000	NA	22100000	ug/kg
CF46-028	750661.313	2083865.683	2.5	4.5	Acetone	36.000	5.400	NA	102000000	ug/kg
CF46-028	750661.313	2083865.683	2.5	4.5	Benzo(a)anthracene	64.000	28.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	2.5	4.5	Chrysene	72.000	32.000	NA	3490000	ug/kg
CF46-028	750661.313	2083865.683	2.5	4.5	Fluoranthene	140.000	26.000	NA	27200000	ug/kg
CF46-028	750661.313	2083865.683	2.5	4.5	Naphthalene	3.700	1.000	NA	3090000	ug/kg
CF46-028	750661.313	2083865.683	2.5	4.5	Plutonium-239/240	5.130	NA	0.020	50	pCi/g
CF46-028	750661.313	2083865.683	4.5	6.5	2-Methylnaphthalene	54.000	33.000	NA	20400000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Acenaphthene	260.000	32.000	NA	40800000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Anthracene	770.000	24.000	NA	204000000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Benzo(a)anthracene	720.000	25.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Benzo(a)pyrene	480.000	41.000	NA	3490	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Benzo(b)fluoranthene	390.000	30.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Benzo(k)fluoranthene	460.000	33.000	NA	349000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Chrysene	670.000	29.000	NA	3490000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Dibenzofuran	180.000	37.000	NA	2950000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Fluoranthene	2600.000	23.000	NA	27200000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Fluorene	350.000	35.000	NA	40800000	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Indeno(1,2,3-cd)pyrene	200.000	23.000	NA	34900	ug/kg
CF46-028	750661.313	2083865.683	4.5	6.5	Pyrene	2000.000	140.000	NA	22100000	ug/kg
CF46-035	750755.736	2083804.152	0.0	0.5	Uranium-234	3.466	NA	2.253	300	pCi/g
CF46-035	750755.736	2083804.152	0.0	0.5	Uranium-235	0.286	NA	0.094	8	pCi/g
CF46-035	750755.736	2083804.152	0.0	0.5	Uranium-238	3.466	NA	2.000	351	pCi/g
CF46-036	750712.114	2083776.639	0.0	0.5	Barium	787.000	NA	141.260	26400	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CF46-036	750712.114	2083776.639	0.0	0.5	Benzo(a)anthracene	51.000	28.000	NA	34900	ug/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Cadmium	9.650	NA	1.612	962	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Chromium	32.300	NA	16.990	268	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Chrysene	55.000	31.000	NA	3490000	ug/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Cobalt	11.200	NA	10.910	1550	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Fluoranthene	76.000	25.000	NA	27200000	ug/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Iron	34600.000	NA	18037.000	307000	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Mercury	16.500	NA	0.134	25200	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Nickel	36.900	NA	14.910	20400	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Strontium	135.000	NA	48.940	613000	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Uranium-234	3.694	NA	2.253	300	pCi/g
CF46-036	750712.114	2083776.639	0.0	0.5	Uranium-235	0.246	NA	0.094	8	pCi/g
CF46-036	750712.114	2083776.639	0.0	0.5	Uranium-238	3.694	NA	2.000	351	pCi/g
CF46-036	750712.114	2083776.639	0.0	0.5	Vanadium	116.000	NA	45.590	7150	mg/kg
CF46-036	750712.114	2083776.639	0.0	0.5	Zinc	4700.000	NA	73.760	307000	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Arsenic	15.700	NA	10.090	22.2	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Barium	920.000	NA	141.260	26400	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Chromium	43.100	NA	16.990	268	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Fluoranthene	56.000	23.000	NA	27200000	ug/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Iron	29900.000	NA	18037.000	307000	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Nickel	34.600	NA	14.910	20400	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Strontium	235.000	NA	48.940	613000	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Uranium-235	0.136	NA	0.094	8	pCi/g
CF46-046	750665.539	2083883.479	3.0	3.1	Vanadium	58.100	NA	45.590	7150	mg/kg
CF46-046	750665.539	2083883.479	3.0	3.1	Zinc	238.000	NA	73.760	307000	mg/kg
CG44-000	750285.490	2083949.570	0.5	0.8	Uranium-234	4.244	NA	2.640	300	pCi/g
CG44-000	750285.490	2083949.570	0.5	0.8	Uranium-235	0.221	NA	0.120	8	pCi/g
CG44-000	750285.490	2083949.570	0.5	0.8	Uranium-238	4.244	NA	1.490	351	pCi/g
CG44-001	750359.802	2083955.589	0.0	0.5	Uranium-234	4.882	NA	2.253	300	pCi/g
CG44-001	750359.802	2083955.589	0.0	0.5	Uranium-235	0.273	NA	0.094	8	pCi/g
CG44-001	750359.802	2083955.589	0.0	0.5	Uranium-238	4.882	NA	2.000	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CG44-001	750359.802	2083955.589	0.5	2.5	Uranium-234	4.803	NA	2.640	300	pCi/g
CG44-001	750359.802	2083955.589	0.5	2.5	Uranium-235	0.198	NA	0.120	8	pCi/g
CG44-001	750359.802	2083955.589	0.5	2.5	Uranium-238	4.803	NA	1.490	351	pCi/g
CG44-002	750264.780	2083979.010	0.6	1.1	Uranium-234	3.411	NA	2.253	300	pCi/g
CG44-002	750264.780	2083979.010	0.6	1.1	Uranium-238	3.411	NA	2.000	351	pCi/g
CG44-002	750264.780	2083979.010	1.1	1.4	Americium-241	0.475	NA	0.020	76	pCi/g
CG44-002	750264.780	2083979.010	1.1	1.4	Plutonium-239/240	2.706	NA	0.020	50	pCi/g
CG44-004	750343.975	2084103.197	0.0	0.5	Americium-241	1.278	NA	0.023	76	pCi/g
CG44-004	750343.975	2084103.197	0.0	0.5	Plutonium-239/240	7.285	NA	0.066	50	pCi/g
CG44-004	750343.975	2084103.197	0.0	0.5	Uranium-235	0.202	NA	0.094	8	pCi/g
CG44-004	750343.975	2084103.197	0.0	0.5	Zinc	280.000	NA	73.760	307000	mg/kg
CG44-004	750343.975	2084103.197	0.5	2.5	Cadmium	1.900	NA	1.700	962	mg/kg
CG44-004	750343.975	2084103.197	0.5	2.5	Uranium-238	1.801	NA	1.490	351	pCi/g
CG44-005	750266.517	2084033.078	0.0	0.5	Copper	33.000	NA	18.060	40900	mg/kg
CG44-005	750266.517	2084033.078	0.0	0.5	Manganese	410.000	NA	365.080	3480	mg/kg
CG44-005	750266.517	2084033.078	0.0	0.5	Strontium	88.000	NA	48.940	613000	mg/kg
CG44-005	750266.517	2084033.078	0.0	0.5	Uranium-234	4.404	NA	2.253	300	pCi/g
CG44-005	750266.517	2084033.078	0.0	0.5	Uranium-235	0.260	NA	0.094	8	pCi/g
CG44-005	750266.517	2084033.078	0.0	0.5	Uranium-238	4.404	NA	2.000	351	pCi/g
CG44-005	750266.517	2084033.078	0.0	0.5	Vanadium	47.000	NA	45.590	7150	mg/kg
CG44-005	750266.517	2084033.078	0.0	0.5	Zinc	80.000	NA	73.760	307000	mg/kg
CG44-005	750266.517	2084033.078	1.5	2.5	Ethylbenzene	36.300	6.520	NA	4250000	ug/kg
CG44-005	750266.517	2084033.078	1.5	2.5	Toluene	40.400	11.900	NA	31300000	ug/kg
CG44-005	750266.517	2084033.078	1.5	2.5	Uranium-235	0.167	NA	0.120	8	pCi/g
CG44-005	750266.517	2084033.078	1.5	2.5	Xylene	207.000	13.000	NA	2040000	ug/kg
CG44-005	750266.517	2084033.078	3.5	4.5	Uranium-238	1.569	NA	1.490	351	pCi/g
CG44-005	750266.517	2084033.078	4.5	6.5	Uranium-235	0.205	NA	0.120	8	pCi/g
CG44-005	750266.517	2084033.078	4.5	6.5	Uranium-238	2.023	NA	1.490	351	pCi/g
CG44-005	750266.517	2084033.078	6.5	8.5	Iron	55000.000	NA	41046.520	307000	mg/kg
CG44-005	750266.517	2084033.078	6.5	8.5	Uranium-234	4.519	NA	2.640	300	pCi/g
CG44-005	750266.517	2084033.078	6.5	8.5	Uranium-238	4.519	NA	1.490	351	pCi/g
CG46-005	750723.086	2084093.060	0.0	0.5	Antimony	14.000	NA	0.470	409	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CG46-005	750723.086	2084093.060	0.0	0.5	Chromium	18.000	NA	16.990	268	mg/kg
CG46-005	750723.086	2084093.060	0.0	0.5	Copper	47.000	NA	18.060	40900	mg/kg
CG46-005	750723.086	2084093.060	0.0	0.5	Mercury	0.200	NA	0.134	25200	mg/kg
CG46-005	750723.086	2084093.060	0.0	0.5	Uranium-234	4.492	NA	2.253	300	pCi/g
CG46-005	750723.086	2084093.060	0.0	0.5	Uranium-235	0.273	NA	0.094	8	pCi/g
CG46-005	750723.086	2084093.060	0.0	0.5	Uranium-238	4.492	NA	2.000	351	pCi/g
CG46-005	750723.086	2084093.060	0.0	0.5	Zinc	270.000	NA	73.760	307000	mg/kg
CG46-005	750723.086	2084093.060	1.0	2.5	Americium-241	0.208	NA	0.020	76	pCi/g
CG46-005	750723.086	2084093.060	1.0	2.5	Ethylbenzene	1.600	1.300	NA	4250000	ug/kg
CG46-005	750723.086	2084093.060	1.0	2.5	Naphthalene	1.600	0.930	NA	3090000	ug/kg
CG46-005	750723.086	2084093.060	1.0	2.5	Plutonium-239/240	0.305	NA	0.020	50	pCi/g
CG46-005	750723.086	2084093.060	1.0	2.5	Toluene	3.700	0.850	NA	31300000	ug/kg
CG46-005	750723.086	2084093.060	1.0	2.5	Xylene	6.800	3.000	NA	2040000	ug/kg
CG46-005	750723.086	2084093.060	3.5	4.5	Americium-241	0.263	NA	0.020	76	pCi/g
CG46-005	750723.086	2084093.060	3.5	4.5	Cadmium	20.000	NA	1.700	962	mg/kg
CG46-005	750723.086	2084093.060	3.5	4.5	Cobalt	31.000	NA	29.040	1550	mg/kg
CG46-005	750723.086	2084093.060	3.5	4.5	Manganese	1300.000	NA	901.620	3480	mg/kg
CG46-005	750723.086	2084093.060	3.5	4.5	Plutonium-239/240	1.498	NA	0.020	50	pCi/g
CG46-005	750723.086	2084093.060	3.5	4.5	Uranium, Total	12.000	NA	3.040	2750	mg/kg
CG46-005	750723.086	2084093.060	3.5	4.5	Uranium-234	3.370	NA	2.640	300	pCi/g
CG46-005	750723.086	2084093.060	3.5	4.5	Uranium-235	0.195	NA	0.120	8	pCi/g
CG46-005	750723.086	2084093.060	3.5	4.5	Uranium-238	3.370	NA	1.490	351	pCi/g
CG46-005	750723.086	2084093.060	4.5	6.5	Cadmium	7.100	NA	1.700	962	mg/kg
CG46-005	750723.086	2084093.060	4.5	6.5	Uranium, Total	28.000	NA	3.040	2750	mg/kg
CG46-005	750723.086	2084093.060	4.5	6.5	Uranium-234	6.217	NA	2.640	300	pCi/g
CG46-005	750723.086	2084093.060	4.5	6.5	Uranium-235	0.325	NA	0.120	8	pCi/g
CG46-005	750723.086	2084093.060	4.5	6.5	Uranium-238	6.217	NA	1.490	351	pCi/g
CG46-005	750723.086	2084093.060	7.5	8.5	Cadmium	2.900	NA	1.700	962	mg/kg
CG46-005	750723.086	2084093.060	7.5	8.5	Uranium, Total	6.600	NA	3.040	2750	mg/kg
CG46-005	750723.086	2084093.060	7.5	8.5	Uranium-234	3.529	NA	2.640	300	pCi/g
CG46-005	750723.086	2084093.060	7.5	8.5	Uranium-235	0.200	NA	0.120	8	pCi/g
CG46-005	750723.086	2084093.060	7.5	8.5	Uranium-238	3.529	NA	1.490	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW/AL	Unit
CG46-006	750713.100	2084093.321	0.0	0.5	Americium-241	0.442	NA	0.023	76	pCi/g
CG46-006	750713.100	2084093.321	0.0	0.5	Antimony	1.100	NA	0.470	409	mg/kg
CG46-006	750713.100	2084093.321	0.0	0.5	Barium	290.000	NA	141.260	26400	mg/kg
CG46-006	750713.100	2084093.321	0.0	0.5	Cadmium	1.700	NA	1.612	962	mg/kg
CG46-006	750713.100	2084093.321	0.0	0.5	Chromium	20.000	NA	16.990	268	mg/kg
CG46-006	750713.100	2084093.321	0.0	0.5	Copper	59.000	NA	18.060	40900	mg/kg
CG46-006	750713.100	2084093.321	0.0	0.5	Lithium	12.000	NA	11.550	20400	mg/kg
CG46-006	750713.100	2084093.321	0.0	0.5	Mercury	0.520	NA	0.134	25200	mg/kg
CG46-006	750713.100	2084093.321	0.0	0.5	Plutonium-239/240	2.517	NA	0.066	50	pCi/g
CG46-006	750713.100	2084093.321	0.0	0.5	Uranium-235	0.168	NA	0.094	8	pCi/g
CG46-006	750713.100	2084093.321	0.0	0.5	Zinc	310.000	NA	73.760	307000	mg/kg
CG46-006	750713.100	2084093.321	1.5	2.5	Americium-241	0.405	NA	0.020	76	pCi/g
CG46-006	750713.100	2084093.321	1.5	2.5	Cadmium	3.700	NA	1.700	962	mg/kg
CG46-006	750713.100	2084093.321	1.5	2.5	Ethylbenzene	6.180	4.910	NA	4250000	ug/kg
CG46-006	750713.100	2084093.321	1.5	2.5	Naphthalene	6.300	4.910	NA	3090000	ug/kg
CG46-006	750713.100	2084093.321	1.5	2.5	Plutonium-239/240	2.309	NA	0.020	50	pCi/g
CG46-006	750713.100	2084093.321	1.5	2.5	Toluene	40.500	4.910	NA	31300000	ug/kg
CG46-006	750713.100	2084093.321	1.5	2.5	Uranium-235	0.192	NA	0.120	8	pCi/g
CG46-006	750713.100	2084093.321	1.5	2.5	Uranium-238	1.794	NA	1.490	351	pCi/g
CG46-006	750713.100	2084093.321	1.5	2.5	Xylene	43.800	9.830	NA	2040000	ug/kg
CG46-006	750713.100	2084093.321	1.5	2.5	Zinc	150.000	NA	139.100	307000	mg/kg
CG46-006	750713.100	2084093.321	3.5	4.5	Americium-241	0.591	NA	0.020	76	pCi/g
CG46-006	750713.100	2084093.321	3.5	4.5	Cadmium	32.000	NA	1.700	962	mg/kg
CG46-006	750713.100	2084093.321	3.5	4.5	Copper	41.000	NA	38.210	40900	mg/kg
CG46-006	750713.100	2084093.321	3.5	4.5	Lead	25.000	NA	24.970	1000	mg/kg
CG46-006	750713.100	2084093.321	3.5	4.5	Mercury	1.900	NA	1.520	25200	mg/kg
CG46-006	750713.100	2084093.321	3.5	4.5	Plutonium-239/240	3.368	NA	0.020	50	pCi/g
CG46-006	750713.100	2084093.321	3.5	4.5	Uranium, Total	5.300	NA	3.040	2750	mg/kg
CG46-006	750713.100	2084093.321	3.5	4.5	Uranium-234	3.863	NA	2.640	300	pCi/g
CG46-006	750713.100	2084093.321	3.5	4.5	Uranium-235	0.343	NA	0.120	8	pCi/g
CG46-006	750713.100	2084093.321	3.5	4.5	Uranium-238	3.863	NA	1.490	351	pCi/g
CG46-006	750713.100	2084093.321	5.0	6.5	Cadmium	11.000	NA	1.700	962	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CG46-006	750713.100	2084093.321	5.0	6.5	Uranium, Total	94.000	NA	3.040	2750	mg/kg
CG46-006	750713.100	2084093.321	5.0	6.5	Uranium-234	16.570	NA	2.640	300	pCi/g
CG46-006	750713.100	2084093.321	5.0	6.5	Uranium-235	0.709	NA	0.120	8	pCi/g
CG46-006	750713.100	2084093.321	5.0	6.5	Uranium-238	16.570	NA	1.490	351	pCi/g
CG46-006	750713.100	2084093.321	6.5	8.5	Cadmium	8.500	NA	1.700	962	mg/kg
CG46-006	750713.100	2084093.321	6.5	8.5	Uranium-234	4.565	NA	2.640	300	pCi/g
CG46-006	750713.100	2084093.321	6.5	8.5	Uranium-235	0.247	NA	0.120	8	pCi/g
CG46-006	750713.100	2084093.321	6.5	8.5	Uranium-238	4.565	NA	1.490	351	pCi/g
CG46-007	750697.227	2084093.397	0.0	0.5	Copper	27.000	NA	18.060	40900	mg/kg
CG46-007	750697.227	2084093.397	0.0	0.5	Uranium-234	4.111	NA	2.253	300	pCi/g
CG46-007	750697.227	2084093.397	0.0	0.5	Uranium-235	0.222	NA	0.094	8	pCi/g
CG46-007	750697.227	2084093.397	0.0	0.5	Uranium-238	4.111	NA	2.000	351	pCi/g
CG46-007	750697.227	2084093.397	0.0	0.5	Zinc	170.000	NA	73.760	307000	mg/kg
CG46-007	750697.227	2084093.397	1.0	2.5	Ethylbenzene	15.200	5.120	NA	4250000	ug/kg
CG46-007	750697.227	2084093.397	1.0	2.5	Naphthalene	9.150	5.120	NA	3090000	ug/kg
CG46-007	750697.227	2084093.397	1.0	2.5	Toluene	82.400	5.120	NA	31300000	ug/kg
CG46-007	750697.227	2084093.397	1.0	2.5	Uranium-234	3.183	NA	2.640	300	pCi/g
CG46-007	750697.227	2084093.397	1.0	2.5	Uranium-235	0.239	NA	0.120	8	pCi/g
CG46-007	750697.227	2084093.397	1.0	2.5	Uranium-238	3.183	NA	1.490	351	pCi/g
CG46-007	750697.227	2084093.397	1.0	2.5	Xylene	106.000	10.300	NA	2040000	ug/kg
CG46-007	750697.227	2084093.397	3.5	4.5	Uranium-234	4.289	NA	2.640	300	pCi/g
CG46-007	750697.227	2084093.397	3.5	4.5	Uranium-235	0.237	NA	0.120	8	pCi/g
CG46-007	750697.227	2084093.397	3.5	4.5	Uranium-238	4.289	NA	1.490	351	pCi/g
CG46-007	750697.227	2084093.397	4.5	6.5	Uranium-234	8.403	NA	2.640	300	pCi/g
CG46-007	750697.227	2084093.397	4.5	6.5	Uranium-235	0.410	NA	0.120	8	pCi/g
CG46-007	750697.227	2084093.397	4.5	6.5	Uranium-238	8.403	NA	1.490	351	pCi/g
CG46-007	750697.227	2084093.397	6.5	8.5	Uranium-234	5.129	NA	2.640	300	pCi/g
CG46-007	750697.227	2084093.397	6.5	8.5	Uranium-235	0.235	NA	0.120	8	pCi/g
CG46-007	750697.227	2084093.397	6.5	8.5	Uranium-238	5.129	NA	1.490	351	pCi/g
CG47-004	750897.859	2084089.329	0.0	0.5	Uranium-234	5.071	NA	2.253	300	pCi/g
CG47-004	750897.859	2084089.329	0.0	0.5	Uranium-235	0.273	NA	0.094	8	pCi/g
CG47-004	750897.859	2084089.329	0.0	0.5	Uranium-238	5.071	NA	2.000	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CG47-004	750897.859	2084089.329	1.0	2.5	Uranium-234	4.599	NA	2.640	300	pCi/g
CG47-004	750897.859	2084089.329	1.0	2.5	Uranium-235	0.248	NA	0.120	8	pCi/g
CG47-004	750897.859	2084089.329	1.0	2.5	Uranium-238	4.599	NA	1.490	351	pCi/g
CG47-004	750897.859	2084089.329	3.5	4.5	Uranium-234	5.099	NA	2.640	300	pCi/g
CG47-004	750897.859	2084089.329	3.5	4.5	Uranium-235	0.257	NA	0.120	8	pCi/g
CG47-004	750897.859	2084089.329	3.5	4.5	Uranium-238	5.099	NA	1.490	351	pCi/g
CG47-004	750897.859	2084089.329	5.5	6.5	Uranium-238	1.793	NA	1.490	351	pCi/g
CG47-004	750897.859	2084089.329	7.5	8.5	Uranium-235	0.141	NA	0.120	8	pCi/g
CH44-000	750302.510	2084208.850	0.7	1.2	Antimony	1.100	NA	0.470	409	mg/kg
CH44-000	750302.510	2084208.850	0.7	1.2	Copper	27.000	NA	18.060	40900	mg/kg
CH44-000	750302.510	2084208.850	0.7	1.2	Uranium-235	0.142	NA	0.094	8	pCi/g
CH46-000	750704.175	2084154.640	0.0	0.5	Americium-241	0.254	NA	0.023	76	pCi/g
CH46-000	750704.175	2084154.640	0.0	0.5	Chromium	28.000	NA	16.990	268	mg/kg
CH46-000	750704.175	2084154.640	0.0	0.5	Copper	21.000	NA	18.060	40900	mg/kg
CH46-000	750704.175	2084154.640	0.0	0.5	Plutonium-239/240	0.340	NA	0.066	50	pCi/g
CH46-000	750704.175	2084154.640	0.0	0.5	Zinc	120.000	NA	73.760	307000	mg/kg
CH46-000	750704.175	2084154.640	1.0	2.5	Americium-241	0.295	NA	0.020	76	pCi/g
CH46-000	750704.175	2084154.640	1.0	2.5	Methylene chloride	2.000	0.860	NA	2530000	ug/kg
CH46-000	750704.175	2084154.640	1.0	2.5	Plutonium-239/240	0.182	NA	0.020	50	pCi/g
CH46-000	750704.175	2084154.640	1.0	2.5	Uranium-234	2.820	NA	2.640	300	pCi/g
CH46-000	750704.175	2084154.640	1.0	2.5	Uranium-235	0.338	NA	0.120	8	pCi/g
CH46-000	750704.175	2084154.640	3.5	4.5	Aluminum	37000.000	NA	35373.170	228000	mg/kg
CH46-000	750704.175	2084154.640	3.5	4.5	Americium-241	0.142	NA	0.020	76	pCi/g
CH46-000	750704.175	2084154.640	3.5	4.5	Methylene chloride	1.500	0.810	NA	2530000	ug/kg
CH46-000	750704.175	2084154.640	5.0	6.5	Acetone	13.000	5.300	NA	102000000	ug/kg
CH46-000	750704.175	2084154.640	5.0	6.5	Methylene chloride	1.700	0.910	NA	2530000	ug/kg
CH46-000	750704.175	2084154.640	6.5	8.5	Methylene chloride	1.500	0.830	NA	2530000	ug/kg
CH46-001	750694.659	2084162.960	0.0	0.5	Lithium	12.000	NA	11.550	20400	mg/kg
CH46-001	750694.659	2084162.960	0.0	0.5	Uranium-234	4.064	NA	2.253	300	pCi/g
CH46-001	750694.659	2084162.960	0.0	0.5	Uranium-235	0.210	NA	0.094	8	pCi/g
CH46-001	750694.659	2084162.960	0.0	0.5	Uranium-238	4.064	NA	2.000	351	pCi/g
CH46-001	750694.659	2084162.960	1.0	2.5	Americium-241	0.375	NA	0.020	76	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW/AL	Unit
CH46-001	750694.659	2084162.960	1.0	2.5	Ethylbenzene	18.100	5.210	NA	4250000	ug/kg
CH46-001	750694.659	2084162.960	1.0	2.5	Naphthalene	5.720	5.210	NA	3090000	ug/kg
CH46-001	750694.659	2084162.960	1.0	2.5	Plutonium-239/240	2.137	NA	0.020	50	pCi/g
CH46-001	750694.659	2084162.960	1.0	2.5	Toluene	42.600	5.210	NA	31300000	ug/kg
CH46-001	750694.659	2084162.960	1.0	2.5	Uranium-235	0.178	NA	0.120	8	pCi/g
CH46-001	750694.659	2084162.960	1.0	2.5	Xylene	139.000	10.400	NA	2040000	ug/kg
CH46-001	750694.659	2084162.960	3.5	4.5	Uranium-234	5.337	NA	2.640	300	pCi/g
CH46-001	750694.659	2084162.960	3.5	4.5	Uranium-235	0.304	NA	0.120	8	pCi/g
CH46-001	750694.659	2084162.960	3.5	4.5	Uranium-238	5.337	NA	1.490	351	pCi/g
CH46-001	750694.659	2084162.960	5.0	6.5	Uranium, Total	9.400	NA	3.040	2750	mg/kg
CH46-001	750694.659	2084162.960	5.0	6.5	Uranium-234	5.538	NA	2.640	300	pCi/g
CH46-001	750694.659	2084162.960	5.0	6.5	Uranium-235	0.240	NA	0.120	8	pCi/g
CH46-001	750694.659	2084162.960	5.0	6.5	Uranium-238	5.538	NA	1.490	351	pCi/g
CH46-002	750694.278	2084163.553	0.0	0.5	Antimony	0.950	NA	0.470	409	mg/kg
CH46-002	750694.278	2084163.553	0.0	0.5	Uranium-234	3.544	NA	2.253	300	pCi/g
CH46-002	750694.278	2084163.553	0.0	0.5	Uranium-235	0.178	NA	0.094	8	pCi/g
CH46-002	750694.278	2084163.553	0.0	0.5	Uranium-238	3.544	NA	2.000	351	pCi/g
CH46-002	750694.278	2084163.553	0.0	0.5	Zinc	160.000	NA	73.760	307000	mg/kg
CH46-002	750694.278	2084163.553	1.0	2.5	Toluene	5.310	4.770	NA	31300000	ug/kg
CH46-002	750694.278	2084163.553	1.0	2.5	Uranium-235	0.136	NA	0.120	8	pCi/g
CH46-002	750694.278	2084163.553	1.0	2.5	Zinc	140.000	NA	139.100	307000	mg/kg
CH46-002	750694.278	2084163.553	3.5	4.5	Americium-241	0.347	NA	0.020	76	pCi/g
CH46-002	750694.278	2084163.553	3.5	4.5	Ethylbenzene	9.360	5.150	NA	4250000	ug/kg
CH46-002	750694.278	2084163.553	3.5	4.5	Plutonium-239/240	1.977	NA	0.020	50	pCi/g
CH46-002	750694.278	2084163.553	3.5	4.5	Toluene	19.900	5.150	NA	31300000	ug/kg
CH46-002	750694.278	2084163.553	3.5	4.5	Uranium-235	0.151	NA	0.120	8	pCi/g
CH46-002	750694.278	2084163.553	3.5	4.5	Xylene	72.100	10.300	NA	2040000	ug/kg
CH46-002	750694.278	2084163.553	3.5	4.5	Zinc	140.000	NA	139.100	307000	mg/kg
CH46-002	750694.278	2084163.553	5.5	6.5	Americium-241	0.866	NA	0.020	76	pCi/g
CH46-002	750694.278	2084163.553	5.5	6.5	Naphthalene	4.920	4.850	NA	3090000	ug/kg
CH46-002	750694.278	2084163.553	5.5	6.5	Plutonium-239/240	4.934	NA	0.020	50	pCi/g
CH46-002	750694.278	2084163.553	5.5	6.5	Uranium-235	0.123	NA	0.120	8	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW/AL	Unit
CH46-002	750694.278	2084163.553	7.3	8.5	Uranium-234	3.715	NA	2.640	300	pCi/g
CH46-002	750694.278	2084163.553	7.3	8.5	Uranium-235	0.196	NA	0.120	8	pCi/g
CH46-002	750694.278	2084163.553	7.3	8.5	Uranium-238	3.715	NA	1.490	351	pCi/g
CH46-003	750699.280	2084146.312	0.0	0.5	Uranium-235	0.167	NA	0.094	8	pCi/g
CH46-003	750699.280	2084146.312	0.0	0.5	Uranium-238	3.172	NA	2.000	351	pCi/g
CH46-003	750699.280	2084146.312	0.0	0.5	Zinc	91.000	NA	73.760	307000	mg/kg
CH46-003	750699.280	2084146.312	1.0	2.5	Ethylbenzene	20.700	5.160	NA	4250000	ug/kg
CH46-003	750699.280	2084146.312	1.0	2.5	Toluene	79.400	5.160	NA	31300000	ug/kg
CH46-003	750699.280	2084146.312	1.0	2.5	Uranium-234	3.130	NA	2.640	300	pCi/g
CH46-003	750699.280	2084146.312	1.0	2.5	Uranium-235	0.194	NA	0.120	8	pCi/g
CH46-003	750699.280	2084146.312	1.0	2.5	Uranium-238	3.130	NA	1.490	351	pCi/g
CH46-003	750699.280	2084146.312	1.0	2.5	Xylene	131.000	10.300	NA	2040000	ug/kg
CH46-003	750699.280	2084146.312	3.5	4.5	Americium-241	0.404	NA	0.020	76	pCi/g
CH46-003	750699.280	2084146.312	3.5	4.5	Plutonium-239/240	2.302	NA	0.020	50	pCi/g
CH46-003	750699.280	2084146.312	3.5	4.5	Uranium-235	0.163	NA	0.120	8	pCi/g
CH46-003	750699.280	2084146.312	5.5	6.5	Copper	46.000	NA	38.210	40900	mg/kg
CH46-003	750699.280	2084146.312	5.5	6.5	Uranium-235	0.176	NA	0.120	8	pCi/g
CH46-003	750699.280	2084146.312	5.5	6.5	Uranium-238	1.605	NA	1.490	351	pCi/g
CH47-000	750918.018	2084180.313	0.0	0.5	Americium-241	12.900	NA	0.023	76	pCi/g
CH47-000	750918.018	2084180.313	0.0	0.5	Beryllium	1.400	NA	0.966	921	mg/kg
CH47-000	750918.018	2084180.313	0.0	0.5	Chromium	17.000	NA	16.990	268	mg/kg
CH47-000	750918.018	2084180.313	0.0	0.5	Plutonium-239/240	73.530	NA	0.066	50	pCi/g
CH47-000	750918.018	2084180.313	0.0	0.5	Uranium-234	4.140	NA	2.253	300	pCi/g
CH47-000	750918.018	2084180.313	0.0	0.5	Uranium-235	0.232	NA	0.094	8	pCi/g
CH47-000	750918.018	2084180.313	0.0	0.5	Uranium-238	4.140	NA	2.000	351	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Americium-241	3.615	NA	0.020	76	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Naphthalene	14.800	5.580	NA	3090000	ug/kg
CH47-000	750918.018	2084180.313	1.0	2.5	Plutonium-239/240	20.606	NA	0.020	50	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Uranium-234	3.441	NA	2.640	300	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Uranium-235	0.180	NA	0.120	8	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Uranium-238	3.441	NA	1.490	351	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW/AL	Unit
CH47-000	750918.018	2084180.313	3.0	4.5	Americium-241	1.758	NA	0.020	76	pCi/g
CH47-000	750918.018	2084180.313	3.0	4.5	Naphthalene	7.920	6.230	NA	3090000	ug/kg
CH47-000	750918.018	2084180.313	3.0	4.5	Plutonium-239/240	10.021	NA	0.020	50	pCi/g
CH47-000	750918.018	2084180.313	3.0	4.5	Uranium-238	2.189	NA	1.490	351	pCi/g
CH47-000	750918.018	2084180.313	5.0	6.5	Americium-241	1.475	NA	0.020	76	pCi/g
CH47-000	750918.018	2084180.313	5.0	6.5	Plutonium-239/240	8.408	NA	0.020	50	pCi/g
CH47-000	750918.018	2084180.313	7.0	8.5	Uranium-234	3.654	NA	2.640	300	pCi/g
CH47-000	750918.018	2084180.313	7.0	8.5	Uranium-235	0.208	NA	0.120	8	pCi/g
CH47-000	750918.018	2084180.313	7.0	8.5	Uranium-238	3.654	NA	1.490	351	pCi/g
CH47-001	750780.174	2084181.862	0.0	0.5	Aluminum	23000.000	NA	16902.000	228000	mg/kg
CH47-001	750780.174	2084181.862	0.0	0.5	Americium-241	50.820	NA	0.023	76	pCi/g
CH47-001	750780.174	2084181.862	0.0	0.5	Beryllium	1.200	NA	0.966	921	mg/kg
CH47-001	750780.174	2084181.862	0.0	0.5	Chromium	23.000	NA	16.990	268	mg/kg
CH47-001	750780.174	2084181.862	0.0	0.5	Lithium	18.000	NA	11.550	20400	mg/kg
CH47-001	750780.174	2084181.862	0.0	0.5	Nickel	19.000	NA	14.910	20400	mg/kg
CH47-001	750780.174	2084181.862	0.0	0.5	Plutonium-239/240	289.674	NA	0.066	50	pCi/g
CH47-001	750780.174	2084181.862	0.0	0.5	Uranium-234	4.244	NA	2.253	300	pCi/g
CH47-001	750780.174	2084181.862	0.0	0.5	Uranium-238	4.244	NA	2.000	351	pCi/g
CH47-001	750780.174	2084181.862	0.0	0.5	Zinc	74.000	NA	73.760	307000	mg/kg
CH47-001	750780.174	2084181.862	0.5	2.5	Americium-241	12.980	NA	0.020	76	pCi/g
CH47-001	750780.174	2084181.862	0.5	2.5	Naphthalene	490.000	27.100	NA	3090000	ug/kg
CH47-001	750780.174	2084181.862	0.5	2.5	Plutonium-239/240	73.986	NA	0.020	50	pCi/g
CH47-001	750780.174	2084181.862	0.5	2.5	Uranium-235	0.269	NA	0.120	8	pCi/g
CH47-001	750780.174	2084181.862	0.5	2.5	Uranium-238	2.171	NA	1.490	351	pCi/g
CH47-001	750780.174	2084181.862	3.5	4.5	Americium-241	102.200	NA	0.020	76	pCi/g
CH47-001	750780.174	2084181.862	3.5	4.5	Lead	31.000	NA	24.970	1000	mg/kg
CH47-001	750780.174	2084181.862	3.5	4.5	Naphthalene	17.300	6.240	NA	3090000	ug/kg
CH47-001	750780.174	2084181.862	3.5	4.5	Plutonium-239/240	582.540	NA	0.020	50	pCi/g
CH47-001	750780.174	2084181.862	3.5	4.5	Uranium-235	0.265	NA	0.120	8	pCi/g
CH47-001	750780.174	2084181.862	3.5	4.5	Uranium-238	2.501	NA	1.490	351	pCi/g
CH47-001	750780.174	2084181.862	5.0	6.5	Americium-241	7.598	NA	0.020	76	pCi/g
CH47-001	750780.174	2084181.862	5.0	6.5	Plutonium-239/240	43.309	NA	0.020	50	pCi/g

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CH47-001	750780.174	2084181.862	5.0	6.5	Uranium-235	0.132	NA	0.120	8	pCi/g
CH47-001	750780.174	2084181.862	6.5	8.5	Uranium-235	4.025	NA	2.640	300	pCi/g
CH47-001	750780.174	2084181.862	6.5	8.5	Uranium-234	0.208	NA	0.120	8	pCi/g
CH47-001	750780.174	2084181.862	6.5	8.5	Uranium-238	4.025	NA	1.490	351	pCi/g

SBD - sample beginning depth  
SED - sample ending depth  
NA - not applicable

Characterization data indicate contaminant concentrations were less than RFCA WRW ALs at 93 of the 99 characterization sampling locations. WRW AL exceedances are listed below.

- The americium-241 activity in surface soil at Sampling Location CE46-019 (within UBC 701) was 3,438 pCi/g, exceeding the WRW AL of 76 pCi/g.
- The plutonium-239/240 activity in surface soil at Sampling Location CE46-019 was 19,596 pCi/g, exceeding the WRW AL of 50 pCi/g.
- Benzo(a)pyrene concentrations in subsurface soil at Sampling Location CF46-021 (5,200 µg/kg at 2.5 - 4.5 ft and 5,200 µg/kg at 4.5 - 6.5 ft) exceeded the WRW AL of 3,490 µg/kg.
- The arsenic concentration in subsurface soil (4.5 - 6.5 ft) at Sampling Location CF46-025 was 38 milligrams per kilogram (mg/kg), exceeding the WRW AL of 22.2 mg/kg.
- The arsenic concentration in subsurface soil (4.5 - 6.5 ft) at Sampling Location CF46-027 was 44 mg/kg, exceeding the WRW AL of 22.2 mg/kg.
- The chromium concentration in subsurface soil (4.5 - 6.5 ft) at Sampling Location CF46-027 was 11,000 mg/kg, exceeding the WRW AL of 268 mg/kg.
- The plutonium-239/240 activity in surface soil at Sampling Location CH47-000 was 73.53 pCi/g, exceeding the WRW AL of 50 pCi/g.
- Plutonium-239/240 activities in soil at Sampling Location CH47-001 (289.67 pCi/g at 0.0 - 0.5 ft, 73.99 pCi/g at 0.5 - 2.5 ft, and 582.54 pCi/g at 3.5 - 4.5 ft) exceeded the WRW AL of 50 pCi/g.
- The americium-241 activity in subsurface soil (3.5 - 4.5 ft) at Sampling Location CH47-001 was 102.2 pCi/g, exceeding the WRW AL of 76 pCi/g.

## 2.4 Sums of Ratios and Summary Statistics

SORs were calculated for surface soil sampling locations in IHSS Group 700-3 (excluding UBCs 776, 777 and 778 and Tank 18). Radionuclide SORs were calculated for surface (0 to 3 ft below ground surface [bgs]) soil samples where radionuclide contaminants of concern (COCs) (americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238) were detected at activities greater than background means plus two standard deviations. Plutonium-239/240 activities were derived from americium-241 activities (americium-241 gamma spectroscopy activity x 5.7) when americium-241 activities were measured using HPGe. Radionuclide SORs are presented in Table 5. All radionuclide SORs were less than 1, except at Sampling Locations CE46-019 and CH47-001. Surface soil at these locations has been removed, and therefore, the data are NLR (Section 12.0).

Non-radionuclide SORs were calculated for surface (0 to 0.5 ft bgs) soil samples where non-radionuclide COCs were detected at concentrations of 10 percent or more of their WRW ALs, but less than the ALs. Non-radionuclide SORs are presented in Table 6. All non-radionuclide SORs were less than 1. In accordance with RFCA, SORs were not calculated for aluminum, arsenic, iron, manganese, or polycyclic aromatic hydrocarbons (PAHs). However, the four metals were not used in processes within Buildings 776 and 777, and PAHs are found in asphalt.

Summary statistics for IHSS Group 700-3 (excluding UBCs 776, 777 and 778 and Tank 18) analytical results (characterization and confirmation analysis) are presented in Tables 7 and 8 for surface and subsurface soil, respectively.

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**Table 5**  
**IHSS Group 700-3 Sum of Ratios for Radionuclides in Surface Soil**

Location	Start Depth (ft)	End Depth (ft)	SOR
CD45-000	0.5	2.5	0.005
CD45-001	0.5	2.5	0.028
CD45-002	0.0	0.5	0.017
CD45-003	0.0	0.5	0.016
CD45-003	0.5	2.5	0.025
CD45-004	0.0	0.5	0.020
CD46-000	0.0	0.5	0.044
CD46-000	0.5	0.8	0.058
CE44-000	0.0	0.5	0.046
CE44-000	0.5	2.5	0.005
CE44-001	0.0	0.5	0.014
CE44-001	0.5	2.5	0.005
CE44-002	0.5	2.5	0.022
CE44-003	0.0	0.5	0.020
CE44-003	0.5	2.5	0.019
CE44-032	0.5	1.0	0.066
CE44-032	1.0	3.0	0.060
CE45-000	0.0	0.5	0.050
CE45-000	0.5	2.5	0.060
CE45-001	0.0	0.5	0.014
CE45-001	0.5	2.5	0.058
CE45-002	0.0	0.5	0.015
CE45-003	0.0	0.5	0.003
CE45-003	0.5	2.5	0.007
CE45-004	0.5	2.5	0.027
CE45-005	0.0	0.5	0.017
CE45-005	0.5	2.5	0.023
CE45-006	0.0	0.5	0.060
CE45-006	0.5	2.5	0.018
CE45-007	0.0	0.5	0.007
CE45-008	0.0	0.5	0.017
CE45-008	0.5	2.5	0.049
CE45-009	0.0	0.5	0.022
CE45-009	0.5	2.5	0.029
CE45-010	0.0	0.5	0.041
CE45-010	0.5	1.0	0.027
CE45-011	0.8	1.3	0.046
CE45-011	1.3	1.5	0.044
CE45-013	0.0	0.5	0.027
CE45-013	0.5	2.5	0.026
CE45-014	0.8	1.3	0.044
CE45-014	1.3	1.5	0.194
CE45-015	0.0	0.5	0.003
CE45-015	0.5	2.5	0.004

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Location	Start Depth (ft)	End Depth (ft)	SOR
CE45-016	0.0	0.5	0.072
CE45-016	0.5	2.5	0.065
CE45-017	0.0	0.5	0.024
CE45-017	0.5	2.5	0.005
CE45-025	0.0	0.5	0.021
CE45-025	0.5	2.5	0.085
CE46-002	0.0	0.5	0.053
CE46-002	0.5	0.8	0.044
CE46-003	0.0	0.5	0.049
CE46-003	0.5	2.5	0.050
CE46-004	0.0	0.5	0.055
CE46-005	0.0	0.5	0.002
CE46-005	0.5	2.5	0.002
CE46-006	0.0	0.5	0.018
CE46-006	0.5	2.5	0.044
CE46-007	0.8	1.3	0.027
CE46-008	0.4	0.9	0.001
CE46-008	0.9	2.9	0.002
CE46-012	0.3	0.8	0.057
CE46-012	0.8	2.8	0.050
CE46-013	0.0	0.5	0.049
CE46-013	0.5	2.5	0.033
CE46-014	0.0	0.5	0.003
CE46-018	0.0	0.3	0.060
CE46-019	0.0	0.3	214.168
CE46-020	0.0	0.3	0.042
CE46-021	0.0	0.3	0.022
CF44-000	0.0	0.5	0.032
CF44-000	0.5	2.5	0.022
CF44-001	0.0	0.5	0.048
CF44-001	0.5	2.5	0.025
CF44-002	0.0	0.5	0.056
CF44-002	0.5	2.5	0.021
CF44-006	0.0	0.5	0.024
CF44-006	0.5	2.5	0.005
CF44-007	0.0	0.5	0.063
CF44-007	0.5	2.5	0.030
CF44-008	0.5	2.5	0.018
CF44-009	0.0	0.5	0.068
CF44-010	0.0	0.5	0.016
CF44-011	0.0	0.5	0.052
CF44-011	0.5	2.5	0.058
CF45-004	0.0	0.5	0.052
CF45-005	0.0	0.5	0.048
CF45-017	0.0	0.5	0.048
CF45-017	0.5	2.5	0.066

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Location	Start Depth (ft)	End Depth (ft)	SOR
CF46-004	0.0	0.5	0.033
CF46-004	0.5	2.5	0.019
CF46-005	0.0	0.5	0.026
CF46-005	0.5	2.5	0.056
CF46-006	0.0	0.5	0.054
CF46-006	0.5	2.5	0.018
CF46-007	0.0	0.5	0.035
CF46-007	0.5	2.5	0.053
CF46-008	0.0	0.5	0.066
CF46-008	0.5	2.5	0.063
CF46-009	0.0	0.5	0.017
CF46-009	0.5	2.5	0.038
CF46-010	0.0	0.5	0.069
CF46-010	0.5	2.5	0.109
CF46-011	0.0	0.5	0.053
CF46-012	1.1	1.6	0.051
CF46-012	1.6	2.6	0.017
CF46-015	1.3	1.8	0.020
CF46-016	1.1	1.6	0.045
CF46-020	0.0	0.5	0.055
CF46-020	0.5	2.5	0.050
CF46-021	0.0	0.5	0.054
CF46-021	0.5	2.5	0.055
CF46-024	0.0	0.5	0.020
CF46-024	0.5	2.5	0.029
CF46-026	0.0	0.5	0.046
CF46-027	0.0	0.5	0.046
CF46-027	0.5	2.5	0.044
CF46-035	0.0	0.5	0.057
CF46-036	0.0	0.5	0.054
CG44-000	0.0	0.5	0.021
CG44-000	0.5	0.8	0.054
CG44-001	0.0	0.5	0.064
CG44-001	0.5	2.5	0.054
CG44-002	0.6	1.1	0.021
CG44-002	1.1	1.4	0.030
CG44-004	0.0	0.5	0.105
CG44-004	0.5	2.5	0.005
CG44-005	0.0	0.5	0.060
CG44-005	1.5	2.5	0.021
CG46-005	0.0	0.5	0.062
CG46-005	1.0	2.5	0.005
CG46-006	0.0	0.5	0.049
CG46-006	1.5	2.5	0.054
CG46-007	0.0	0.5	0.053
CG46-007	1.0	2.5	0.050

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Location	Start Depth (ft)	End Depth (ft)	SOR
CG47-004	0.0	0.5	0.065
CG47-004	1.0	2.5	0.059
CH44-000	0.7	1.2	0.018
CH46-000	0.0	0.5	0.006
CH46-000	1.0	2.5	0.057
CH46-001	0.0	0.5	0.051
CH46-001	1.0	2.5	0.046
CH46-002	0.0	0.5	0.044
CH46-002	1.0	2.5	0.017
CH46-003	0.0	0.5	0.040
CH46-003	1.0	2.5	0.044
CH47-000	0.0	0.5	0.858
CH47-000	1.0	2.5	0.269
CH47-001	0.0	0.5	3.192
CH47-001	0.5	2.5	0.848

**Table 6**  
**IHSS Group 700-3 Sum of Ratios for Non-Radionuclides in Surface Soil**

Location	SOR
CF46-025	0.123
CF46-036	0.121
CH46-000	0.104

**Table 7**  
**IHSS Group 700-3 Surface Soil Characterization Data Summary Statistics**

Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	Background	WRWAL / Standard	Unit
2-Methylnaphthalene	20	30.00%	126.667	390.000	NA	20400000	ug/kg
Acenaphthene	20	50.00%	249.600	650.000	NA	40800000	ug/kg
Acetone	11	45.45%	12.600	21.000	NA	102000000	ug/kg
Aluminum	51	37.25%	22526.316	45000.000	16902.000	228000	mg/kg
Americium-241	106	18.87%	176.776	3438.000	0.023	76	pCi/g
Anthracene	20	50.00%	285.500	710.000	NA	204000000	ug/kg
Antimony	52	15.38%	2.456	14.000	0.470	409	mg/kg
Aroclor-1254	34	17.65%	48.333	200.000	NA	12400	ug/kg
Aroclor-1260	34	14.71%	17.000	26.000	NA	12400	ug/kg
Arsenic	52	3.85%	11.000	11.000	10.090	22.2	mg/kg
Barium	52	5.77%	425.667	787.000	141.260	26400	mg/kg
Benzo(a)anthracene	20	75.00%	487.733	1400.000	NA	34900	ug/kg
Benzo(a)pyrene	20	65.00%	497.077	1300.000	NA	3490	ug/kg
Benzo(b)fluoranthene	20	70.00%	408.571	1000.000	NA	34900	ug/kg
Benzo(k)fluoranthene	20	55.00%	502.364	1400.000	NA	349000	ug/kg
Beryllium	51	21.57%	1.336	2.100	0.966	921	mg/kg
bis(2-Ethylhexyl)phthalate	20	20.00%	445.250	920.000	NA	1970000	ug/kg
Cadmium	52	3.85%	5.675	9.650	1.612	962	mg/kg
Carbon Tetrachloride	11	63.64%	2.371	4.100	NA	81500	ug/kg

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Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	Background	WRW AL / Standard	Unit
Chromium	52	42.31%	21.423	33.000	16.990	268	mg/kg
Chrysene	20	80.00%	500.938	1500.000	NA	3490000	ug/kg
Cobalt	52	3.85%	11.100	11.200	10.910	1550	mg/kg
Copper	52	30.77%	33.375	68.000	18.060	40900	mg/kg
Dibenz(a,h)anthracene	20	35.00%	150.571	360.000	NA	3490	ug/kg
Dibenzofuran	20	25.00%	150.000	270.000	NA	2950000	ug/kg
Ethylbenzene	11	9.09%	4.600	4.600	NA	4250000	ug/kg
Fluoranthene	20	80.00%	1254.063	4000.000	NA	27200000	ug/kg
Fluorene	20	40.00%	216.125	520.000	NA	40800000	ug/kg
Indeno(1,2,3-cd)pyrene	20	50.00%	436.000	1000.000	NA	34900	ug/kg
Iron	52	15.38%	24325.000	34600.000	18037.000	307000	mg/kg
Lead	52	1.92%	79.000	79.000	54.620	1000	mg/kg
Lithium	51	31.37%	15.250	33.000	11.550	20400	mg/kg
Manganese	52	3.85%	500.000	590.000	365.080	3480	mg/kg
Mercury	52	9.62%	13.122	48.000	0.134	25200	mg/kg
Naphthalene	29	24.14%	118.286	490.000	NA	3090000	ug/kg
Nickel	52	30.77%	19.681	36.900	14.910	20400	mg/kg
Plutonium-239/240	105	22.86%	17.277	19596.600	0.066	50	pCi/g
Pyrene	20	65.00%	1263.077	4300.000	NA	22100000	ug/kg
Strontium	52	9.62%	81.400	135.000	48.940	613000	mg/kg
Tetrachloroethene	11	72.73%	4.763	8.000	NA	615000	ug/kg
Toluene	11	9.09%	1.200	1.200	NA	31300000	ug/kg
Trichloroethene	11	27.27%	1.333	1.500	NA	19600	ug/kg
Uranium-234	106	43.40%	3.963	5.726	2.253	300	pCi/g
Uranium-235	106	65.09%	0.195	0.293	0.094	8	pCi/g
Uranium-238	106	45.28%	3.886	5.726	2.000	351	pCi/g
Vanadium	52	11.54%	61.500	116.000	45.590	7150	mg/kg
Xylene	11	9.09%	45.000	45.000	NA	2040000	ug/kg
Zinc	52	30.77%	495.813	4700.000	73.760	307000	mg/kg

**Table 8**  
**IHSS Group 700-3 Subsurface Soil Characterization Data Summary Statistics**

Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	Background	WRW AL	Unit
1,1-Dichloroethane	160	0.63%	4.000	4.000	NA	22500000	ug/kg
1,1-Dichloroethene	160	0.63%	3.500	3.500	NA	17000	ug/kg
1,2,4-Trichlorobenzene	160	0.63%	0.810	0.810	NA	9230000	ug/kg
1,2-Dichloropropane	160	0.63%	2.200	2.200	NA	345000	ug/kg
2-Methylnaphthalene	58	6.90%	465.250	900.000	NA	20400000	ug/kg
3,3'-Dichlorobenzidine	58	1.72%	160.000	160.000	NA	61300	ug/kg
Acenaphthene	58	13.79%	1004.250	3600.000	NA	40800000	ug/kg
Acetone	160	6.88%	21.145	36.000	NA	102000000	ug/kg
Aluminum	123	4.88%	43166.667	52000.000	35373.170	228000	mg/kg
Americium-241	184	16.85%	6.385	102.200	0.020	76	pCi/g
Anthracene	58	13.79%	2017.875	7300.000	NA	204000000	ug/kg

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Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	Background	WRW AL	Unit
Aroclor-1254	34	14.71%	158.200	370.000	NA	12400	ug/kg
Aroclor-1260	34	17.65%	56.450	210.000	NA	12400	ug/kg
Arsenic	124	4.84%	24.617	44.000	13.140	22.2	mg/kg
Barium	124	2.42%	613.333	920.000	289.380	26400	mg/kg
Benzo(a)anthracene	58	18.97%	1635.818	8000.000	NA	34900	ug/kg
Benzo(a)pyrene	58	13.79%	1571.000	5200.000	NA	3490	ug/kg
Benzo(b)fluoranthene	58	13.79%	1555.125	5500.000	NA	34900	ug/kg
Benzo(k)fluoranthene	58	13.79%	1358.375	4500.000	NA	349000	ug/kg
Cadmium	124	6.45%	10.888	32.000	1.700	962	mg/kg
Carbon Tetrachloride	160	7.50%	518.116	5500.000	NA	81500	ug/kg
Chloroform	160	5.00%	22.050	69.000	NA	19200	ug/kg
Chromium	124	2.42%	3739.000	11000.000	68.270	268	mg/kg
Chrysene	58	18.97%	1602.818	7500.000	NA	3490000	ug/kg
Cobalt	124	1.61%	35.500	40.000	29.040	1550	mg/kg
Copper	124	4.03%	183.400	710.000	38.210	40900	mg/kg
Dibenz(a,h)anthracene	58	5.17%	596.667	780.000	NA	3490	ug/kg
Dibenzofuran	58	6.90%	1187.500	2300.000	NA	2950000	ug/kg
Ethylbenzene	160	5.00%	13.880	36.300	NA	4250000	ug/kg
Fluoranthene	58	24.14%	4725.643	31000.000	NA	27200000	ug/kg
Fluorene	58	12.07%	1343.857	4500.000	NA	40800000	ug/kg
Hexachlorobutadiene	160	1.88%	109.333	220.000	NA	147000	ug/kg
Indeno(1,2,3-cd)pyrene	58	10.34%	975.167	2400.000	NA	34900	ug/kg
Iron	124	2.42%	145666.667	290000.000	41046.520	307000	mg/kg
Lead	124	5.65%	43.857	120.000	24.970	1000	mg/kg
Manganese	124	4.03%	1590.000	2200.000	901.620	3480	mg/kg
Mercury	124	0.81%	1.900	1.900	1.520	25200	mg/kg
Methylene chloride	160	5.63%	16.589	130.000	NA	2530000	ug/kg
Molybdenum	124	0.81%	4100.000	4100.000	25.610	5110	mg/kg
n-Nitrosodiphenylamine	58	3.45%	235.000	250.000	NA	7810000	ug/kg
Naphthalene	160	15.00%	154.544	2680.000	NA	3090000	ug/kg
Nickel	124	1.61%	370.500	670.000	62.210	20400	mg/kg
Plutonium-239/240	184	21.20%	22.770	582.540	0.020	50	pCi/g
Pyrene	58	13.79%	5680.000	21000.000	NA	22100000	ug/kg
Strontium	124	0.81%	235.000	235.000	211.380	613000	mg/kg
Tetrachloroethene	160	6.25%	24.670	180.000	NA	615000	ug/kg
Toluene	160	5.63%	35.290	82.400	NA	31300000	ug/kg
Trichloroethene	160	0.63%	12.000	12.000	NA	19600	ug/kg
Uranium, Total	123	6.50%	20.550	94.000	3.040	2750	mg/kg
Uranium-234	184	33.15%	4.457	16.570	2.640	300	pCi/g
Uranium-235	184	52.72%	0.227	1.530	0.120	8	pCi/g
Uranium-238	184	48.37%	3.602	16.570	1.490	351	pCi/g
Vanadium	124	2.42%	346.667	740.000	88.490	7150	mg/kg
Xylene	160	5.63%	105.300	230.000	NA	2040000	ug/kg
Zinc	124	3.23%	167.000	238.000	139.100	307000	mg/kg

### 3.0 ACCELERATED ACTION

Accelerated action objectives for IHSS Group 700-3 were described in ER RSOP Notification #04-04 (DOE 2004b). The accelerated action objectives for the IHSS Group Sites (excluding UBCs 776, 777 and 778 and Tank 18) included the following:

- Remove Building 730 and Tanks T-9 and T-10, which are located in IHSSs 118.1 and 132.
- Remove free-phase chlorinated solvents from the T-9 and T-10 excavation. It is anticipated that all free-product will be removed. If conditions allow, remove contaminated soil associated with IHSSs 118.1 and 132 until contaminant concentrations are below WRW ALs. If sufficient soil cannot be removed to meet WRW ALs, the consultative process will be used to refine remediation goals.
- When removal actions at IHSSs 118.1 and 132 are complete, apply Hydrogen Release Compound® (HRC®) or a similar amendment to the excavation, based on site-specific conditions during backfilling, to reduce residual contamination in subsurface soil.
- Remove all process, foundation, sanitary, and storm drains, including OPWL, within 3 ft of the surface.
- Remove soil containing contaminant concentrations greater than the WRW ALs or as indicated by the SSRS.
- Collect confirmation samples in accordance with the IASAP (DOE 2001).

Accelerated action activities were conducted between May 2003 and December 2004. Starting and ending dates of significant activities are listed in Table 9. Key structural features removed and remaining are shown on Figure 8. Photographs of activities are provided in Appendix A.

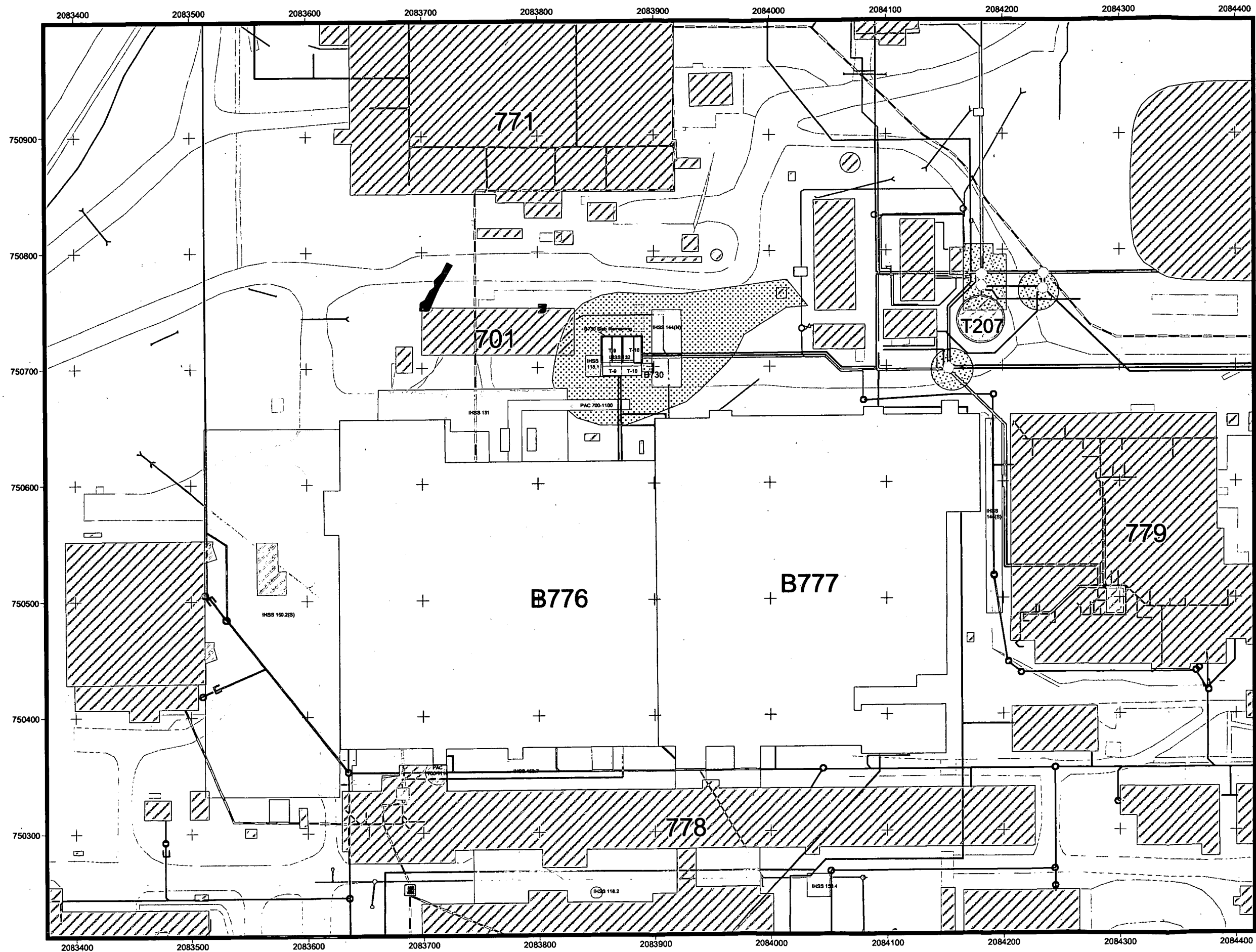
**Table 9**  
**IHSS Group 700-3 Accelerated Action Activities**

Activity	Starting Date	Ending Date
Sampling and analysis	May 28, 2003	December 1, 2004
Excavation	August 4, 2004	November 1, 2004
Backfilling	November 3, 2004	November 16, 2004

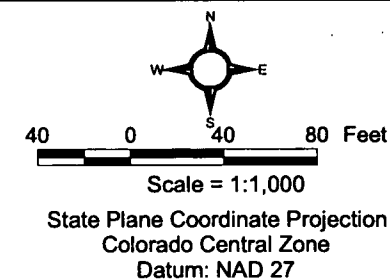
#### 3.1 Removal of Building 730, Tanks T-9 and T-10, and Contaminated Soil

The removal of Building 730, Tanks T-9 and T-10, and contaminated soil associated with IHSSs 118.1 and 132 was a major project and took approximately 3.5 months to complete. A large excavation was required to remove Building 730, the tanks, and the associated free-product (Figure 8). The project started with clearing the area prior to excavation, including removing aboveground steam line stanchions, miscellaneous concrete slabs and structures, asphalt, and groundwater wells. Wells were abandoned in accordance with State Engineer' Office procedures, unless totally removed. The debris was disposed of as sanitary waste. During excavation, OPWL and sanitary lines were encountered and removed. OPWL lines were bagged,

**Figure 8**  
**IHSS Group 700-3**  
**Structural Features Removed**  
**and Remaining**



KEY	
	Removed tank
	Removed section of T-9/T-10 slab
	B730 Slab Remaining
	OPWL excavation
	IHSS 118.1 excavation
	Removed UBC 701 hot spot
	Removed OPWL hot spot
	Fuel-oil line excavation
	Removed OPWL Manhole or Valve Vault
	Removed OPWL
	Remaining OPWL
	OPWL — does not exist
	Removed NPWL
	Remaining NPWL
	Remaining NPWL valve vault
	Removed sewer line
	Remaining sewer line
	Remaining storm drain
	Remaining structure
	Demolished structure



U.S. Department of Energy  
 Rocky Flats Environmental Technology Site

Prepared by: **RADMS**

Prepared for: **KAISER HILL COMPANY**

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tapped and cut up, then disposed of in intermodal waste containers as low-level radioactive waste (LLW), or as low-level radioactive mixed waste (LLMW) if they contained lead or had been in contact with solvent-contaminated soil. The ends of the remaining lines (located along the excavation boundary at least 3 ft below final grade) were grouted. Sanitary lines were mostly disposed of as sanitary waste. Lines close to Building 730, which contained radionuclide contamination, were managed as LLW, or as LLMW if they had been in contact with solvent-contaminated soil (Section 10.0).

Approximately 1,700 cubic yards (cy) of soil and debris were removed. Soil samples were collected at five locations from three intervals (16.5 to 18.5 ft bgs, 18.5 to 20.5 ft bgs, and 20.5 to 22.5 ft bgs) prior to removal for waste management purposes. These samples were analyzed for radionuclides and volatile organic compounds (VOCs) using low detection limits. Results indicated that all radionuclide activities were less than background, with one minor exception. One activity level was slightly above the background mean plus two standard deviations but significantly less than the WRW AL. All VOC concentrations at 16.5 to 18.5 ft were less than WRW ALs, and only one VOC concentration at 18.5 to 20.5 ft was greater than its WRW AL. Various VOC concentrations at 20.5 to 22.5 ft, at all five locations, exceeded their WRW ALs.

Based on these data, removed soil was placed in lined containers, and most was managed as hazardous waste. Soil adjacent to the upper part of Building 730, which contained radionuclide contamination, was managed as LLW. Soil that was adjacent to the bottom of the solvent tanks and in contact with solvents was managed as LLMW. Based on the accelerated action objectives, no other soil samples were collected and analyzed during removal activities. Soil around the Building 730 structure was removed to between 25 and 28 ft bgs. The excavation extended well below the bedrock surface. The maximum length of the excavation was approximately 225 ft, and the maximum width was approximately 115 ft (Figure 8).

The below-grade Building 730 was demolished in stages, with the tanks demolished last (refer to photographs in Appendix A). Gravel that had been used as backfill around the lowermost part of the structure was also removed and disposed of as LLMW. In addition, the structure's slab under the southern tanks was broken up and removed. The portion of slab remaining in place is approximately 23 ft x 35 ft. Prior to being broken up, the entire slab was surveyed for radiological contamination. Based on the survey results, the remaining radioactivity was calculated to be 0.04 pCi/g. (Refer to the Regulatory Contact Record dated November 1, 2004, in Appendix B and the survey results that follow.) The total amount of plutonium remaining in the slab is estimated to be 0.0000586 grams. Rubble associated with the top of the building was disposed of as sanitary waste. Rubble from the level of the tanks was placed into intermodal containers and disposed of as LLW. The lowermost rubble that was potentially in contact with carbon tetrachloride was placed in IP1 containers and managed as LLMW.

Groundwater was encountered throughout the project and was continuously pumped out into water storage tanks along with accumulated water from precipitation. Free product, primarily carbon tetrachloride, was also pumped out of the lowermost part of the excavation as encountered into the storage tanks. The water portion of the tank contents were routinely trucked to Building 891 for treatment. After water collection ceased, the remaining carbon tetrachloride free product was pumped into two IBC containers for disposal as radiologically contaminated free product.

During wastewater transfer operations, approximately 100 gallons of dust suppression water and groundwater from the IHSS 118.1/Building 730 excavation spilled onto the ground at the Building 891 treatment facility. The water contained carbon tetrachloride. The soil was sampled for radionuclides and VOCs. Uranium-235 and -238 activities were slightly above background at 0.17 and 3.46 pCi/g, respectively. Background activities are 0.12 and 1.5 pCi/g, respectively. Carbon tetrachloride was present at 103 µg/kg, and tetrachloroethene was present at 27 µg/kg. Concentrations of other VOCs were detected at less than 5 µg/kg. All concentrations were less than WRW ALs. This soil was removed, packaged and sent off-site as waste, and a confirmation sample was collected to verify that the spill was appropriately remediated. All concentrations were less than WRW ALs. This removal was conducted under the ER RSOP for IHSS Group 700-3 (Notification #04-04) (DOE 2004b), because the water originated from IHSS Group 700-3. (Refer to the Regulatory Contact Record dated March 1, 2005, in Appendix A.)

Soil was removed until no free liquids were visible. After structural components, liquids and soil were removed, four confirmation soil samples were collected to indicate residual contaminant concentrations. (Refer to the Regulatory Contact Record dated October 27, 2004, in Appendix A.) The excavation was then backfilled. Backfilling began with the placement of approximately 4 ft of gravel (630 cy), followed by a layer of HRC®, three 8-inch lifts of compacted soil, a second layer of HRC®, three additional 8-inch lifts of compacted soil, and a third and final layer of HRC®. Placement of HRC® was discussed with the Lead Regulatory Agency prior to placement. The remaining excavation was then backfilled. Sources of backfill included soil from the upper 16 ft of the excavation and the Trailer 371 area. Soil from the IHSS 118.1 excavation was analyzed, and detected carbon tetrachloride concentrations were less than 50 parts per billion. Approximately 4,200 pounds of HRC® were used. After backfilling, the site was graded. The railroad spur to Building 776 was constructed over the project site. The site will be reseeded after the removal of Buildings 776, 777 and 778 and the railroad spur.

### **3.2 UBC 701 Remediation**

Remediation involved removal of the Building 701 concrete slab, the fuel-oil line and oil-stained soil located near the northwestern corner of the slab, and the radiologically contaminated surface soil found under the slab at Sampling Location CE46-019 (Section 2.3 and Figure 8). The excavation to remove the fuel-oil line and oil-stained soil was approximately 47 ft x 6 ft x 2.5 ft deep. (Refer to Regulatory Contact Record dated October 5, 2004, in Appendix A.) The excavation to remove the radiologically contaminated soil discovered during building demolition was approximately 7.5 ft x 7 ft x 3 ft. (Refer to the Regulatory Contact Record dated September 15, 2004, in Appendix A.) All of the excavated soil was disposed of as LLW. Confirmation samples were collected from the excavation bottoms and sidewalls to confirm that remaining concentrations were less than WRW ALs and the RFCA total petroleum hydrocarbon (TPH) standard (Section 4.0). The fuel-oil line excavation was backfilled with clean fill from the T371 area, and the hot-spot excavation was backfilled with soil in the immediate area. After backfilling, the areas were graded. The railroad spur to Building 776 was constructed over the project site. The site will be reseeded after the removal of Buildings 776, 777 and 778 and the railroad spur. The concrete debris, fuel-oil line, oil-stained soil, and radiologically contaminated soil were disposed of as LLW.

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### 3.3 OPWL Removal in the Vicinity of Former Tank 207

OPWL, valve vaults, and manholes in the vicinity of former Tank 207 were removed, as well as all encountered utilities (abandoned sanitary and storm drains, abandoned water and gas lines, and communication and alarm lines). A large excavation was created, as shown on Figure 8. During removal, the lines were tapped and drained, cut into 15-ft sections, bagged and taped, and disposed of in intermodal waste containers as LLW. The valve vault and manhole debris was also disposed of in intermodal containers. Other utilities were disposed of as sanitary waste. The ends of remaining OPWL were grouted to at least 65 feet from the open end. The contaminated surface and subsurface soil at Sampling Location CH47-001 (Section 2.3) was removed during this excavation activity. Confirmation samples were collected from the excavation bottom and the excavation slopes to confirm that remaining concentrations were less than RFCA criteria (Section 4.0). The excavated soil was disposed of in intermodal containers as LLW. The excavation was then backfilled with clean soil from the T371 area. After backfilling, the area was graded. The site will be reseeded after the removal of Buildings 776, 777 and 778 and the railroad spur. OPWL removal will also be discussed in the closeout report for OPWL.

In addition, the plutonium surface soil hot spot at Sampling Location CH47-000 was removed (Section 2.3 and Figure 8). The excavation was approximately 4 ft x 4 ft x 8 inches. The excavated soil was disposed of in an intermodal container as LLW. Confirmation samples were collected from the excavation sidewalls to confirm that remaining concentrations were less than WRW ALs (Section 4.0). A confirmation sample from the excavation bottom was not necessary because characterization data for CH47-000 indicate that subsurface concentrations were less than the WRW ALs. After removal and sampling, the area was graded.

### 4.0 CONFIRMATION SAMPLING

Confirmation sampling was conducted where contaminated soil was removed. At IHSSs 118.1 and 132, this sampling was performed to indicate the level of residual contaminant concentrations in soil. At the other sites, sampling was performed to determine whether residual concentrations are below the RFCA WRW ALs or TPH standard, or are acceptable based on the SSRS. Sampling and analysis were conducted in accordance with the IASAP (DOE 2001) and IABZSAP (DOE 2004a). Specifications for confirmation sampling are presented in Table 2 and included in the summary of sampling and analysis (Table 3) and the summary statistics (Tables 7 and 8). Results are presented in Table 10 and shown on Figure 9. Only results greater than background means plus two standard deviations or RLs are shown. Results indicate all contaminant concentrations are below WRW ALs. All project data, retrieved from SWD on March 21, 2005, are provided on the enclosed CD.

SORs based on confirmation sampling results for radionuclides are presented in Table 11. SORs for radionuclides were only calculated for soil concentrations within the first 3 ft below grade. As shown, SORs are less than 1. No SORs for non-radionuclides were calculated because all concentrations were less than 10 percent of the corresponding WRW ALs. The presence of radionuclides below 3 ft and non-radionuclides in subsurface soil are addressed in the SSRS (Section 6.0).

**Table 10**  
**IHSS Group 700-3 Accelerated Action Confirmation Soil Sampling Results**

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL/Standard	Unit
CE46-023	750760.870	2083708.756	3.5	4.0	Uranium-234	4.297	NA	2.640	300.0	pCi/g
CE46-023	750760.870	2083708.756	3.5	4.0	Uranium-235	0.211	NA	0.120	8.0	pCi/g
CE46-023	750760.870	2083708.756	3.5	4.0	Uranium-238	4.297	NA	1.490	351.0	pCi/g
CE46-024	750749.815	2083702.717	0.0	3.5	Uranium-238	1.522	NA	1.490	351.0	pCi/g
CE46-025	750760.954	2083706.866	0.0	3.5	TPH	69.500	40.400	NA	5000.0	mg/kg
CE46-025	750760.954	2083706.866	0.0	3.5	Uranium-234	4.134	NA	2.640	300.0	pCi/g
CE46-025	750760.954	2083706.866	0.0	3.5	Uranium-238	4.134	NA	1.490	351.0	pCi/g
CE46-026	750789.548	2083723.426	0.0	3.0	TPH	645.000	33.300	NA	5000.0	mg/kg
CE46-026	750789.548	2083723.426	0.0	3.0	Uranium-235	0.213	NA	0.120	8.0	pCi/g
CF46-038	750746.284	2083804.644	0.5	2.5	Americium-241	7.090	NA	0.020	76.0	pCi/g
CF46-038	750746.284	2083804.644	0.5	2.5	Plutonium-239/240	37.100	NA	0.020	50.0	pCi/g
CF46-039	750750.649	2083807.956	0.5	2.5	Americium-241	0.141	NA	0.020	76.0	pCi/g
CF46-039	750750.649	2083807.956	0.5	2.5	Plutonium-239/240	0.634	NA	0.020	50.0	pCi/g
CF46-040	750751.117	2083799.841	0.5	3.0	Americium-241	8.240	NA	0.020	76.0	pCi/g
CF46-040	750751.117	2083799.841	0.5	3.0	Plutonium-239/240	35.700	NA	0.020	50.0	pCi/g
CF46-041	750751.446	2083803.504	3.0	3.5	Plutonium-239/240	0.172	NA	0.020	50.0	pCi/g
CF46-042	750727.109	2083872.308	25.0	25.5	Carbon Tetrachloride	5500.000	41.000	NA	81500.0	ug/kg
CF46-042	750727.109	2083872.308	25.0	25.5	Chloroform	61.000	35.000	NA	19200.0	ug/kg
CF46-042	750727.109	2083872.308	25.0	25.5	Methylene chloride	130.000	89.000	NA	2530000.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	1,1-Dichloroethene	3.500	1.300	NA	17000.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	1,2-Dichloropropane	2.200	1.400	NA	345000.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	Acetone	7.400	5.400	NA	102000000.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	Carbon Tetrachloride	200.000	1.400	NA	81500.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	Chloroform	18.000	1.100	NA	19200.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	Hexachlorobutadiene	93.000	1.700	NA	147000.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	Methylene chloride	1.700	0.940	NA	2530000.0	ug/kg
CF46-043	750715.303	2083854.917	25.0	25.5	Naphthalene	2.900	1.000	NA	3090000.0	ug/kg
CF46-044	750693.091	2083844.583	27.0	28.0	Acetone	28.000	5.700	NA	102000000.0	ug/kg
CF46-044	750693.091	2083844.583	27.0	28.0	Americium-241	3.430	NA	0.020	76.0	pCi/g
CF46-044	750693.091	2083844.583	27.0	28.0	Carbon Tetrachloride	38.000	7.400	NA	81500.0	ug/kg
CF46-044	750693.091	2083844.583	27.0	28.0	Chloroform	2.300	1.100	NA	19200.0	ug/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL/Standard	Unit
CF46-044	750693.091	2083844.583	27.0	28.0	Hexachlorobutadiene	15.000	8.600	NA	147000.0	ug/kg
CF46-044	750693.091	2083844.583	27.0	28.0	Methylene chloride	2.200	0.990	NA	2530000.0	ug/kg
CF46-044	750693.091	2083844.583	27.0	28.0	Naphthalene	1.400	1.100	NA	3090000.0	ug/kg
CF46-044	750693.091	2083844.583	27.0	28.0	Plutonium-239/240	12.700	NA	0.020	50.0	pCi/g
CF46-045	750715.826	2083890.110	25.0	25.5	Acetone	31.000	29.000	NA	102000000.0	ug/kg
CF46-045	750715.826	2083890.110	25.0	25.5	Carbon Tetrachloride	230.000	1.500	NA	81500.0	ug/kg
CF46-045	750715.826	2083890.110	25.0	25.5	Chloroform	69.000	1.100	NA	19200.0	ug/kg
CF46-045	750715.826	2083890.110	25.0	25.5	Hexachlorobutadiene	220.000	8.900	NA	147000.0	ug/kg
CF46-045	750715.826	2083890.110	25.0	25.5	Methylene chloride	7.600	5.100	NA	2530000.0	ug/kg
CF46-045	750715.826	2083890.110	25.0	25.5	Naphthalene	28.000	5.500	NA	3090000.0	ug/kg
CH47-000	750918.018	2084180.313	1.0	2.5	Americium-241	3.615	NA	0.020	76.0	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Naphthalene	14.800	5.580	NA	3090000.0	ug/kg
CH47-000	750918.018	2084180.313	1.0	2.5	Plutonium-239/240	20.606	NA	0.020	50.0	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Uranium-234	3.441	NA	2.640	300.0	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Uranium-235	0.180	NA	0.120	8.0	pCi/g
CH47-000	750918.018	2084180.313	1.0	2.5	Uranium-238	3.441	NA	1.490	351.0	pCi/g
CH47-000	750918.018	2084180.313	3.0	4.5	Americium-241	1.758	NA	0.020	76.0	pCi/g
CH47-000	750918.018	2084180.313	3.0	4.5	Naphthalene	7.920	6.230	NA	3090000.0	ug/kg
CH47-000	750918.018	2084180.313	3.0	4.5	Plutonium-239/240	10.021	NA	0.020	50.0	pCi/g
CH47-000	750918.018	2084180.313	3.0	4.5	Uranium-238	2.189	NA	1.490	351.0	pCi/g
CH47-000	750918.018	2084180.313	5.0	6.5	Americium-241	1.475	NA	0.020	76.0	pCi/g
CH47-000	750918.018	2084180.313	5.0	6.5	Plutonium-239/240	8.408	NA	0.020	50.0	pCi/g
CH47-000	750918.018	2084180.313	7.0	8.5	Uranium-234	3.654	NA	2.640	300.0	pCi/g
CH47-000	750918.018	2084180.313	7.0	8.5	Uranium-235	0.208	NA	0.120	8.0	pCi/g
CH47-000	750918.018	2084180.313	7.0	8.5	Uranium-238	3.654	NA	1.490	351.0	pCi/g
CH47-025	750918.660	2084176.520	0.0	0.5	Acetone	8.600	5.100	NA	102000000.0	ug/kg
CH47-025	750918.660	2084176.520	0.0	0.5	Aluminum	19000.000	NA	16902.000	228000.0	mg/kg
CH47-025	750918.660	2084176.520	0.0	0.5	Americium-241	3.380	NA	0.023	76.0	pCi/g
CH47-025	750918.660	2084176.520	0.0	0.5	Carbon Tetrachloride	3.400	1.300	NA	81500.0	ug/kg
CH47-025	750918.660	2084176.520	0.0	0.5	Chromium	19.000	NA	16.990	268.0	mg/kg
CH47-025	750918.660	2084176.520	0.0	0.5	Copper	20.000	NA	18.060	40900.0	mg/kg
CH47-025	750918.660	2084176.520	0.0	0.5	Lithium	14.000	NA	11.550	20400.0	mg/kg
CH47-025	750918.660	2084176.520	0.0	0.5	Nickel	17.000	NA	14.910	20400.0	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL/Standard	Unit
CH47-025	750918.660	2084176.520	0.0	0.5	Plutonium-239/240	2.600	NA	0.066	50.0	pCi/g
CH47-025	750918.660	2084176.520	0.0	0.5	Tetrachloroethene	8.000	1.100	NA	615000.0	ug/kg
CH47-025	750918.660	2084176.520	0.0	0.5	Trichloroethene	1.400	0.960	NA	19600.0	ug/kg
CH47-026	750921.590	2084181.140	0.0	0.5	Acetone	21.000	4.900	NA	1020000000.0	ug/kg
CH47-026	750921.590	2084181.140	0.0	0.5	Aluminum	20000.000	NA	16902.000	228000.0	mg/kg
CH47-026	750921.590	2084181.140	0.0	0.5	Americium-241	4.430	NA	0.023	76.0	pCi/g
CH47-026	750921.590	2084181.140	0.0	0.5	Carbon Tetrachloride	2.000	1.300	NA	81500.0	ug/kg
CH47-026	750921.590	2084181.140	0.0	0.5	Lithium	12.000	NA	11.550	20400.0	mg/kg
CH47-026	750921.590	2084181.140	0.0	0.5	Plutonium-239/240	2.920	NA	0.066	50.0	pCi/g
CH47-026	750921.590	2084181.140	0.0	0.5	Tetrachloroethene	5.000	1.100	NA	615000.0	ug/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Acetone	10.000	5.200	NA	1020000000.0	ug/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Aluminum	20000.000	NA	16902.000	228000.0	mg/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Americium-241	1.340	NA	0.023	76.0	pCi/g
CH47-027	750918.040	2084184.830	0.0	0.5	Arsenic	11.000	NA	10.090	22.2	mg/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Carbon Tetrachloride	4.100	1.400	NA	81500.0	ug/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Chromium	18.000	NA	16.990	268.0	mg/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Lithium	12.000	NA	11.550	20400.0	mg/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Nickel	17.000	NA	14.910	20400.0	mg/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Plutonium-239/240	1.040	NA	0.066	50.0	pCi/g
CH47-027	750918.040	2084184.830	0.0	0.5	Tetrachloroethene	6.500	1.100	NA	615000.0	ug/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Trichloroethene	1.500	0.980	NA	19600.0	ug/kg
CH47-027	750918.040	2084184.830	0.0	0.5	Vanadium	46.000	NA	45.590	7150.0	mg/kg
CH47-028	750914.340	2084180.650	0.0	0.5	Acetone	6.400	5.200	NA	1020000000.0	ug/kg
CH47-028	750914.340	2084180.650	0.0	0.5	Aluminum	18000.000	NA	16902.000	228000.0	mg/kg
CH47-028	750914.340	2084180.650	0.0	0.5	Americium-241	5.160	NA	0.023	76.0	pCi/g
CH47-028	750914.340	2084180.650	0.0	0.5	Carbon Tetrachloride	2.200	1.300	NA	81500.0	ug/kg
CH47-028	750914.340	2084180.650	0.0	0.5	Chromium	18.000	NA	16.990	268.0	mg/kg
CH47-028	750914.340	2084180.650	0.0	0.5	Lithium	12.000	NA	11.550	20400.0	mg/kg
CH47-028	750914.340	2084180.650	0.0	0.5	Nickel	18.000	NA	14.910	20400.0	mg/kg
CH47-028	750914.340	2084180.650	0.0	0.5	Plutonium-239/240	2.860	NA	0.066	50.0	pCi/g
CH47-028	750914.340	2084180.650	0.0	0.5	Tetrachloroethene	4.400	1.100	NA	615000.0	ug/kg
CH47-029	750777.844	2084166.926	0.0	0.5	Aluminum	17000.000	NA	16902.000	228000.0	mg/kg
CH47-029	750777.844	2084166.926	0.0	0.5	Americium-241	3.430	NA	0.023	76.0	pCi/g

Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL/Standard	Unit
CH47-029	750777.844	2084166.926	0.0	0.5	Copper	20.000	NA	18.060	40900.0	mg/kg
CH47-029	750777.844	2084166.926	0.0	0.5	Lithium	12.000	NA	11.550	20400.0	mg/kg
CH47-029	750777.844	2084166.926	0.0	0.5	Naphthalene	1.000	0.880	NA	3090000.0	ug/kg
CH47-029	750777.844	2084166.926	0.0	0.5	Plutonium-239/240	2.490	NA	0.066	50.0	pCi/g
CH47-029	750777.844	2084166.926	0.0	0.5	Tetrachloroethene	2.100	1.000	NA	615000.0	ug/kg
CH47-029	750777.844	2084166.926	0.5	2.5	Americium-241	0.189	NA	0.020	76.0	pCi/g
CH47-029	750777.844	2084166.926	0.5	2.5	Naphthalene	7.700	0.920	NA	3090000.0	ug/kg
CH47-029	750777.844	2084166.926	0.5	2.5	Plutonium-239/240	0.156	NA	0.020	50.0	pCi/g
CH47-029	750777.844	2084166.926	0.5	2.5	Tetrachloroethene	1.200	1.100	NA	615000.0	ug/kg
CH47-029	750777.844	2084166.926	2.5	3.0	Aluminum	52000.000	NA	35373.170	228000.0	mg/kg
CH47-029	750777.844	2084166.926	2.5	3.0	Americium-241	0.497	NA	0.020	76.0	pCi/g
CH47-029	750777.844	2084166.926	2.5	3.0	Arsenic	15.000	NA	13.140	22.2	mg/kg
CH47-029	750777.844	2084166.926	2.5	3.0	Naphthalene	5.600	0.990	NA	3090000.0	ug/kg
CH47-029	750777.844	2084166.926	2.5	3.0	Plutonium-239/240	0.269	NA	0.020	50.0	pCi/g
CH47-029	750777.844	2084166.926	2.5	3.0	Tetrachloroethene	2.600	1.100	NA	615000.0	ug/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Aluminum	28000.000	NA	16902.000	228000.0	mg/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Americium-241	7.300	NA	0.023	76.0	pCi/g
CH47-030	750804.740	2084183.930	0.0	0.5	Beryllium	1.200	NA	0.966	921.0	mg/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Carbon Tetrachloride	1.500	1.300	NA	81500.0	ug/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Chromium	22.000	NA	16.990	268.0	mg/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Ethylbenzene	4.600	1.300	NA	4250000.0	ug/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Lithium	19.000	NA	11.550	20400.0	mg/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Naphthalene	11.000	0.950	NA	3090000.0	ug/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Nickel	19.000	NA	14.910	20400.0	mg/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Plutonium-239/240	3.180	NA	0.066	50.0	pCi/g
CH47-030	750804.740	2084183.930	0.0	0.5	Tetrachloroethene	4.000	1.100	NA	615000.0	ug/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Vanadium	46.000	NA	45.590	7150.0	mg/kg
CH47-030	750804.740	2084183.930	0.0	0.5	Xylene	45.000	3.100	NA	2040000.0	ug/kg
CH47-030	750804.740	2084183.930	0.5	2.5	Acetone	33.000	5.400	NA	102000000.0	ug/kg
CH47-030	750804.740	2084183.930	0.5	2.5	Americium-241	19.100	NA	0.020	76.0	pCi/g
CH47-030	750804.740	2084183.930	0.5	2.5	Naphthalene	2.600	1.000	NA	3090000.0	ug/kg
CH47-030	750804.740	2084183.930	0.5	2.5	Plutonium-239/240	8.450	NA	0.020	50.0	pCi/g
CH47-030	750804.740	2084183.930	0.5	2.5	Tetrachloroethene	2.100	1.200	NA	615000.0	ug/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL/Standard	Unit
CH47-030	750804.740	2084183.930	0.5	2.5	Uranium-234	4.400	NA	2.640	300.0	pCi/g
CH47-030	750804.740	2084183.930	0.5	2.5	Uranium-235	0.301	NA	0.120	8.0	pCi/g
CH47-030	750804.740	2084183.930	0.5	2.5	Uranium-238	2.520	NA	1.490	351.0	pCi/g
CH47-030	750804.740	2084183.930	2.5	3.0	Americium-241	16.000	NA	0.020	76.0	pCi/g
CH47-030	750804.740	2084183.930	2.5	3.0	Lead	120.000	NA	24.970	1000.0	mg/kg
CH47-030	750804.740	2084183.930	2.5	3.0	Naphthalene	9.400	0.940	NA	3090000.0	ug/kg
CH47-030	750804.740	2084183.930	2.5	3.0	Plutonium-239/240	8.960	NA	0.020	50.0	pCi/g
CH47-031	750763.450	2084202.550	0.0	0.5	Americium-241	2.560	NA	0.023	76.0	pCi/g
CH47-031	750763.450	2084202.550	0.0	0.5	Antimony	0.490	NA	0.470	409.0	mg/kg
CH47-031	750763.450	2084202.550	0.0	0.5	Carbon Tetrachloride	1.900	1.600	NA	81500.0	ug/kg
CH47-031	750763.450	2084202.550	0.0	0.5	Chromium	19.000	NA	16.990	268.0	mg/kg
CH47-031	750763.450	2084202.550	0.0	0.5	Copper	20.000	NA	18.060	40900.0	mg/kg
CH47-031	750763.450	2084202.550	0.0	0.5	Iron	20000.000	NA	18037.000	307000.0	mg/kg
CH47-031	750763.450	2084202.550	0.0	0.5	Lithium	13.000	NA	11.550	20400.0	mg/kg
CH47-031	750763.450	2084202.550	0.0	0.5	Naphthalene	11.000	1.200	NA	3090000.0	ug/kg
CH47-031	750763.450	2084202.550	0.0	0.5	Plutonium-239/240	1.020	NA	0.066	50.0	pCi/g
CH47-031	750763.450	2084202.550	0.0	0.5	Tetrachloroethene	3.400	1.300	NA	615000.0	ug/kg
CH47-031	750763.450	2084202.550	0.5	2.5	Acetone	12.000	5.100	NA	102000000.0	ug/kg
CH47-031	750763.450	2084202.550	0.5	2.5	Aluminum	42000.000	NA	35373.170	228000.0	mg/kg
CH47-031	750763.450	2084202.550	0.5	2.5	Americium-241	0.901	NA	0.020	76.0	pCi/g
CH47-031	750763.450	2084202.550	0.5	2.5	Naphthalene	1.200	0.950	NA	3090000.0	ug/kg
CH47-031	750763.450	2084202.550	0.5	2.5	Tetrachloroethene	1.800	1.100	NA	615000.0	ug/kg
CH47-031	750763.450	2084202.550	2.5	3.0	Lead	31.000	NA	24.970	1000.0	mg/kg
CH47-031	750763.450	2084202.550	2.5	3.0	Plutonium-239/240	0.060	NA	0.020	50.0	pCi/g
CH47-032	750748.010	2084180.850	0.0	0.5	Acetone	17.000	4.800	NA	102000000.0	ug/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Aluminum	34000.000	NA	16902.000	228000.0	mg/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Antimony	0.640	NA	0.470	409.0	mg/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Beryllium	1.500	NA	0.966	921.0	mg/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Carbon Tetrachloride	1.500	1.300	NA	81500.0	ug/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Chromium	25.000	NA	16.990	268.0	mg/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Iron	21000.000	NA	18037.000	307000.0	mg/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Lithium	17.000	NA	11.550	20400.0	mg/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Nickel	23.000	NA	14.910	20400.0	mg/kg

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Location	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL/Standard	Unit
CH47-032	750748.010	2084180.850	0.0	0.5	Tetrachloroethene	4.700	1.000	NA	615000.0	ug/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Toluene	1.200	0.820	NA	31300000.0	ug/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Trichloroethene	1.100	0.910	NA	19600.0	ug/kg
CH47-032	750748.010	2084180.850	0.0	0.5	Vanadium	56.000	NA	45.590	7150.0	mg/kg
CH47-032	750748.010	2084180.850	0.5	2.5	Americium-241	0.832	NA	0.020	76.0	pCi/g
CH47-032	750748.010	2084180.850	0.5	2.5	Lead	40.000	NA	24.970	1000.0	mg/kg
CH47-032	750748.010	2084180.850	0.5	2.5	Plutonium-239/240	0.697	NA	0.020	50.0	pCi/g
CH47-032	750748.010	2084180.850	2.5	3.0	Americium-241	3.560	NA	0.020	76.0	pCi/g
CH47-032	750748.010	2084180.850	2.5	3.0	Plutonium-239/240	2.840	NA	0.020	50.0	pCi/g
CH47-032	750748.010	2084180.850	2.5	3.0	Tetrachloroethene	1.500	1.000	NA	615000.0	ug/kg
CH47-054	750789.000	2084176.000	5.5	6.0	Acetone	8.300	5.300	NA	102000000.0	ug/kg
CH47-054	750789.000	2084176.000	5.5	6.0	Americium-241	2.080	NA	0.020	76.0	pCi/g
CH47-054	750789.000	2084176.000	5.5	6.0	Methylene chloride	1.100	0.920	NA	2530000.0	ug/kg
CH47-054	750789.000	2084176.000	5.5	6.0	Plutonium-239/240	1.330	NA	0.020	50.0	pCi/g
CH47-054	750789.000	2084176.000	5.5	6.0	Uranium, Total	4.200	NA	3.040	2750.0	mg/kg
CH47-054	750789.000	2084176.000	5.5	6.0	Uranium-234	2.960	NA	2.640	300.0	pCi/g
CH47-054	750789.000	2084176.000	5.5	6.0	Uranium-238	2.620	NA	1.490	351.0	pCi/g

**Table 11**  
**Sums of Ratios Based on Radionuclide Activities in Confirmation Soil Samples**

Location	Northing	Easting	SBD (ft)	SED (ft)	SOR
CE46-023	750760.870	2083708.756	3.5	4	0.053
CE46-024	750749.815	2083702.717	0	3.5	0.004
CE46-025	750760.954	2083706.866	0	3.5	0.026
CE46-026	750789.548	2083723.426	0	3	0.027
CF46-038	750746.284	2083804.644	0.5	2.5	0.413
CF46-039	750750.649	2083807.956	0.5	2.5	0.007
CF46-040	750751.117	2083799.841	0.5	3	0.416
CF46-041	750751.446	2083803.504	3	3.5	0.001
CF46-044	750693.091	2083844.583	27	28	0.155
CH47-000	750918.018	2084180.313	1	2.5	0.269
CH47-000	750918.018	2084180.313	3	4.5	0.116
CH47-000	750918.018	2084180.313	5	6.5	0.092
CH47-000	750918.018	2084180.313	7	8.5	0.049
CH47-025	750918.660	2084176.520	0	0.5	0.067
CH47-026	750921.590	2084181.140	0	0.5	0.083
CH47-027	750918.040	2084184.830	0	0.5	0.027
CH47-028	750914.340	2084180.650	0	0.5	0.093
CH47-029	750777.844	2084166.926	0	0.5	0.067
CH47-029	750777.844	2084166.926	0.5	2.5	0.004
CH47-029	750777.844	2084166.926	2.5	3	0.009
CH47-030	750804.740	2084183.930	0	0.5	0.123
CH47-030	750804.740	2084183.930	0.5	2.5	0.384
CH47-030	750804.740	2084183.930	2.5	3	0.288
CH47-031	750763.450	2084202.550	0	0.5	0.042
CH47-031	750763.450	2084202.550	0.5	2.5	0.012
CH47-031	750763.450	2084202.550	2.5	3	0.001
CH47-032	750748.010	2084180.850	0.5	2.5	0.017
CH47-032	750748.010	2084180.850	2.5	3	0.071
CH47-054	750789.000	2084176.000	5.5	6	0.056

## 5.0 POST-REMEDATION CONDITIONS

All accelerated action objectives were met. Building 730, Tanks T-9 and T-10, free product, VOC-contaminated soil, and waste lines in the area were removed. HRC® was also added to continue to reduce residual contamination in the subsurface soil. A portion of the Building 730 slab (approximately 23 ft x 35 ft) remains at approximately 25 ft below grade. The Building 701 slab was also removed, as well as the radioactive hot spot under the slab and the fuel-oil line and oil-stained soil adjacent to the slab. In addition, radiologically contaminated soil at Sampling Locations CH47-000 and CH47-001 was removed, along with OPWL and a valve vault under Sampling Location CH47-001. Excavations were backfilled, and remediated areas were graded. Removed and remaining structures are shown on Figure 8.

Residual surface and subsurface soil concentrations greater than background means plus two standard deviations or RLs are shown on Figures 10 through 14. The presence of residual



contamination was determined based on historical and accelerated action (characterization and confirmation) sampling results. NLR sampling locations (Section 12.0) are not included. Residual surface and subsurface contaminant concentrations are less than RFCA WRW ALs, with the following exceptions.

- Benzo(a)pyrene concentrations in subsurface soil at Sampling Location CF46-021 (5,200 µg/kg at 2.5 to 4.5 ft and 5,200 µg/kg at 4.5 to 6.5 ft) exceeded the WRW AL of 3,490 µg/kg.
- The arsenic concentration in subsurface soil (4.5 to 6.5 ft) at Sampling Location CF46-025 was 38 mg/kg, exceeding the WRW AL of 22.2 mg/kg.
- The arsenic concentration in subsurface soil (4.5 to 6.5 ft) at Sampling Location CF46-027 was 44 mg/kg, exceeding the WRW AL of 22.2 mg/kg.
- The chromium concentration in subsurface soil (4.5 to 6.5 ft) at Sampling Location CF46-027 was 11,000 mg/kg, exceeding the WRW AL of 268 mg/kg.
- Residual VOC contamination is present at depth in the IHSS 700-118.1 excavation (27 to 28 ft).

Residual contamination is evaluated in the SSRS (Section 6.0) and will be further evaluated in the Sitewide Comprehensive Risk Assessment (CRA) and the Accelerated Action Ecological Screening Evaluation (AAESE).

## 6.0 SUBSURFACE SOIL RISK SCREEN

The SSRS follows the steps identified in Figure 3 of Attachment 5 of RFCA (DOE et al. 2003).

### Screen 1 – Are the COC concentrations below RFCA Table 3 Soil ALs for the WRW?

No. As shown on Figure 12, the arsenic concentrations at Sampling Locations CF46-025 and CF46-027, the benzo(a)pyrene concentrations at Sampling Location CF46-021, and the chromium concentration at Sampling Location CF46-027 are greater than the WRW ALs. In addition, residual VOC contamination at depth in the IHSS 700-118.1 excavation (27 to 28 ft) could exceed WRW ALs.

### Screen 2 – Is there a potential for subsurface soil to become surface soil (landslides and erosion areas identified on Figure 1 of RFCA (DOE et al. 2003).

No. IHSS Group 700-3 sites are not located in an area susceptible to landslides or high erosion based on RFCA Attachment 5, Figure 1.

### Screen 3 – Does subsurface soil contamination for radionuclides exceed criteria defined in RFCA Modification 1, Section 5.3 and Attachment 14?

No. As shown on Figures 10 through 13, radionuclide activities are less than soil WRW ALs.

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**Screen 4 – Is there an environmental pathway and sufficient quantity of COCs that would cause an exceedance of the surface water standards?**

No. Contaminant migration via surface runoff and groundwater are two possible pathways whereby surface water could become contaminated from IHSS Group 700-3 COCs. Run-off from IHSS Group 700-3 is conveyed via storm drains and overland flow north into North Walnut Creek through Gauging Stations 32, 44 and 49 (upstream of North Walnut Creek) (DOE 2003c), which are monitored for contaminant loadings. The nearest RFCA Surface Water Point of Evaluation (POE) is SW093, which is located in North Walnut Creek and receives runoff from a large part of the IA, including IHSS Group 700-3 (DOE 2003c). Increased total suspended solids in the surface water have resulted in reportable concentrations of actinides at SW093 (June 15, 2004, presentation to RFCA Coordinators, updated with available data on June 29, 2004). Concentrations of beryllium, cadmium, chromium and silver also increased during 2004; however, concentrations were always significantly below RFCA surface water ALs. Based on surface water quality data, the chromium soil concentration that exceeded the WRW AL (11,000 mg/kg at 4.5 - 6.5 bgs; Section 2.3) did not appear to impact water quality. Other COCs (VOCs and PAHs) are not monitored at SW093. Related source evaluations will continue and, based on the evaluation findings, appropriate mitigative measures will be implemented. Erosion controls have already been put in place. In addition, storm drains and culverts in the vicinity of IHSS Group 700-3 are being removed, and therefore, environmental pathways to surface water from this route will be disrupted.

Several RFCA groundwater monitoring wells are located near IHSS Group 700-3. The majority of these wells (00700, 18199, 18399, 18499, 18799, and 60299) contain VOCs greater than the RFCA groundwater Tier II ALs. This VOC contamination is considered part of the IA Plume, which is much larger than IHSS Group 700-3 and probably is attributable to multiple sources within the IA, including the carbon tetrachloride releases at IHSS 700-118.1 and possibly IHSS 700-118.2. However, a significant source of VOCs (Tanks T-9 and T-10, and soil and free product within IHSSs 118.1 and 132) was removed as part of this accelerated action, and the addition of HRC® will continue to reduce residual VOC contamination (Section 3.0). The groundwater contamination associated with this area is evaluated in the Draft Interim Measure/Interim Remedial Action for Groundwater at the Rocky Flats Environmental Technology Site (DOE 2004d).

Groundwater results are available for both filtered and unfiltered analyses. Manganese is the only metal detected in unfiltered groundwater and was detected at concentrations less than groundwater Tier II values. Lead was the only metal detected in filtered groundwater at concentrations slightly greater than the groundwater Tier II value (0.25 vs .015 mg/L). There are no detections of chromium in groundwater from wells in the vicinity of IHSS Group 700-3, and chromium does not appear to be mobile in IA groundwater despite its presence in IA soil. Therefore, a groundwater pathway for chromium from soil to surface water apparently does not exist.

While residual contamination could impact surface water, the potential for contaminants from this area to migrate to surface water and adversely impact surface water quality has been greatly minimized. As mentioned in Screen 2, IHSS Group 700-3 sites are not located in an area susceptible to landslides or high erosion. In addition, PAHs, such as benzo(a)pyrene, have low

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solubilities and generally sorb to particulates. Metals also generally sorb to particulates and are relatively immobile in groundwater. Furthermore, any residual VOC contamination is more than 20 ft bgs.

## 7.0 STEWARDSHIP EVALUATION

The IHSS Group 700-3 stewardship evaluation was based on current site conditions.

### 7.1 Current Site Conditions

Based on the accelerated action characterization and remediation activities, the following conditions exist at the IHSS Group 700-3 sites (excluding UBCs 776, 777 and 778 and Tank 18):

- Building 730, Tanks T-9 and T-10, free product, VOC-contaminated soil, and waste lines in the area were removed. HRC® was also added to continue to reduce residual VOC contamination in the subsurface soil. A portion of the Building 730 slab (approximately 23 ft x 35 ft) remains at approximately 25 ft below grade.
- The Building 701 slab was removed, as well as the radioactive hot spot under the slab and the fuel-oil line and oil-stained soil adjacent to the slab. Radiologically contaminated soil at Sampling Locations CH47-000 and CH47-001 was removed, along with OPWL under Sampling Location CH47-001.
- Excavations were backfilled, and remediated areas were graded.
- Residual surface and subsurface contaminant concentrations are less than RFCA WRW ALs, with the following exceptions:
  - Benzo(a)pyrene concentrations in subsurface soil at Sampling Location CF46-021 (5,200 µg/kg at 2.5 to 4.5 ft and 5,200 µg/kg at 4.5 to 6.5 ft) exceeded the WRW AL of 3,490 µg/kg.
  - The arsenic concentration in subsurface soil (4.5 to 6.5 ft) at Sampling Location CF46-025 was 38 mg/kg, exceeding the WRW AL of 22.2 mg/kg.
  - The arsenic concentration in subsurface soil (4.5 to 6.5 ft) at Sampling Location CF46-027 was 44 mg/kg, exceeding the WRW AL of 22.2 mg/kg.
  - The chromium concentration in subsurface soil (4.5 to 6.5 ft) at Sampling Location CF46-027 was 11,000 mg/kg, exceeding the WRW AL of 268 mg/kg.
  - Residual VOC contamination is present at depth in the IHSS 118.1 excavation (27 to 28 ft).

### 7.2 Near-Term Management Recommendations

No IHSS Group-specific, near-term management measures are required. Contaminant concentrations in soil remaining at IHSS Group 700-3 do not trigger any further accelerated action. Site-wide, near-term recommendations include the following:

- Excavation at the site will continue to be controlled through the Site Soil Disturbance Permit process; and
- Access will be restricted to minimize disturbance to newly revegetated areas.

Site access and security controls and the Soil Disturbance Permit process will remain in place pending implementation of long-term controls.

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### 7.3 Long-Term Stewardship Recommendations

Based on remaining environmental conditions at IHSS Group 700-3, no IHSS Group-specific long-term stewardship activities are recommended beyond the generally applicable Site requirements. These requirements may be imposed on this area in the future. Institutional controls that will be used as appropriate for this area include the following:

- Prohibitions on construction of buildings in the IA;
- Restrictions on excavation or other soil disturbance; and
- Prohibitions on groundwater pumping in the area of IHSS Group 700-3.

No IHSS Group-specific engineered controls or environmental monitoring are recommended as a result of the conditions remaining at IHSS Group 700-3. Current groundwater monitoring around IHSS 118.1 will continue as part of the Integrated Monitoring Plan. Likewise, no specific institutional or physical controls are recommended as a result of the conditions remaining at IHSS Group 700-3.

This Closeout Report and associated documentation will be retained as part of the Rocky Flats AR file.

IHSS Group 700-3 will be evaluated as part of the Sitewide CRA, which is part of the RCRA Remedial Investigation/Feasibility Study (RI/FS) that will be conducted for the Site. The need for and extent of any more general, long-term stewardship activities will also be evaluated in the RI/FS. Institutional controls and other long-term stewardship requirements for Rocky Flats will be contained in the Corrective Action Decision/Record of Decision.

### 8.0 DEVIATIONS FROM THE ER RSOP

There were no deviations from the ER RSOP.

### 9.0 RCRA UNIT CLOSURE

Not applicable. The UBC Sites and IHSSs addressed in this report did not contain any RCRA-regulated units, and therefore, no RCRA units were closed as part of this accelerated action. OPWL and Tanks T-9 and T-10 are not RCRA units.

### 10.0 WASTE MANAGEMENT

Waste from the IHSS Group 700-3 accelerated action, excluding activities at UBCs 776, 777 and 778 and Tank 18, consisted of concrete, pipeline, contaminated soil, asbestos debris, asphalt, groundwater and rain water, solvent, and miscellaneous debris (Section 3.0). Clean concrete was disposed of as sanitary waste. Contaminated concrete was loaded into waste cargo containers for disposal as LLW, and some was loaded into metal boxes for disposal as LLMW. Process waste lines from the Building 730 excavation were disposed of as either LLW or LLMW, and sanitary lines from the excavation were mostly disposed of as sanitary waste. OPWL segments and valve vault debris from the former Tank 207 area were disposed of in cargo containers as LLW. The fuel-oil line and oil-stained soil from the UBC 701 area were disposed of as LLW. Soil from the Building 730 excavation was disposed of mostly as hazardous waste; some was disposed of as

LLW and some as LLMW. Soil from the UBC 701 radioactive hot spot was disposed of as LLW, and soil adjacent to OPWL near the former Tank 207 area and north at Sampling Location CH47-000 was disposed of as LLW. Groundwater and rain water collected from the Building 730 excavation were trucked to Building 891 for treatment. Solvent collected from the excavation was disposed of as radiologically contaminated free product. Asbestos waste was managed as LLW. Asphalt and miscellaneous debris were disposed of as sanitary waste. Waste volumes are presented in Table 12 by waste type.

**Table 12**  
**IHSS Group 700-3 Waste Summary**

Type of Waste	Volume
LLW	757 cy
Hazardous	764 cy
LLMW	190 cy
Groundwater/Rain Water	80,000 gallons
Carbon Tetrachloride Free Product	1,000 gallons
Sanitary	2,740 cy

All waste management activities associated with this accelerated action were managed by the RFETS Material Stewardship group. All waste types and volumes generated under this action, and waste containers, used were recorded in the Waste and Environmental Management System (WEMS) database, which is used to track and control storage and movement of waste packages on Site, and shipments to off-site facilities.

## **11.0 SITE RECLAMATION**

The four excavations were backfilled with clean fill from the project area and T371 area (Section 3.0). Documentation regarding backfilling of the excavations is provided in ER Regulatory Contact Records included in Appendix B. Remediated areas were graded. After the Building 776, 777 and 778 slabs and the railroad spur are removed and any soil contamination is removed, the area will be regraded to achieve final grade and seeded.

## **12.0 NO LONGER REPRESENTATIVE SAMPLING LOCATIONS**

Some historical and accelerated action soil characterization sampling locations were removed during the IHSS Group 700-3 accelerated action and are considered NLR. These NLR sampling locations are listed in Table 13. In addition, five waste characterization locations became NLR (CF46-030, CF46-031, CF46-032, CF46-033, and CF46-034). NLR data have been marked in SWD and will not be used in the CRA or other Site analyses.

**Table 13**  
**IHSS Group 700-3 No Longer Representative Sampling Locations**  
**Excluding UBCs 776, 777 and 778 and Tank 18**

Sampling Location	Easting	Northing
02695	2083870	750727
02795	2083855	750699
02895	2083895	750708
02995	2083895	750732
05197	2083902	750734
05297	2083878	750732
05397	2083878	750732
05497	2083851	750709
05597	2083842	750669
05697	2083844	750712
05797	2083907	750673
05897	2083895	750707
05997	2083853	750704
18599	2083894	750719
18699	2083931	750718
18899	2083898	750671
43592	2083920	750730
CE46-019	2083804	750749
CF46-004	2083901	750748
CF46-005	2083922	750748
CF46-006	2083902	750720
CF46-007	2083919	750706
CF46-008	2083898	750692
CF46-009	2083918	750691
CF46-010	2083912	750699
CF46-011	2083911	750726
CF46-015	2083825	750717
CF46-028	2083866	750661
SS402193	2083938	750755
SS430694	2083821	750669
SS430794	2083849	750669
SS430894	2083874	750670
SS430994	2083899	750670
SS804593	2083898	750740
SS804693	2083923	750740
SS804793	2083910	750716
SS804893	2083898	750687
SS804993	2083923	750687
SS805093	2083837	750739
SS805193	2083863	750739
SS805293	2083850	750714
CH47-000 A	2084180	750918
CH47-001	2084182	750780
PCB-21-1	2083574	750649

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Sampling Location	Easting	Northing
PCB-21-2	2083575	750660
PCB-21-3	2083570	750654
PCB-21-4	2083578	750654

### 13.0 DATA QUALITY ASSESSMENT

The data quality objectives (DQOs) for this project are described in the IASAP (DOE 2001). All DQOs for this project were achieved based on the following:

- Regulatory agency-approved sampling program design (IASAP Addendum #IA-03-04 [DOE 2003a]), modified due to field conditions, in accordance with the IASAP (DOE 2001) and IABZSAP (DOE 2004a);
- Collection of samples in accordance with the sampling design; and
- Results of the DQA, as described in the following sections.

#### 13.1 Data Quality Assessment Process

The DQA process ensures that the type, quantity, and quality of environmental data used in decision making are defensible, and is based on the following guidance and requirements:

- U.S. Environmental Protection Agency (EPA), 1994a, Guidance for the Data Quality Objective Process, QA/G-4;
- EPA, 1998, Guidance for the Data Quality Assessment Process, Practical Methods for Data Analysis, QA/G-9; and
- U.S. Department of Energy (DOE), 1999, Quality Assurance, Order 414.1A.

Verification and validation (V&V) of data are the primary components of the DQA. The final data are compared with original project DQOs and evaluated with respect to project decisions; uncertainty within the decisions; and quality criteria required for the data, specifically precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Validation criteria are consistent with the following RFETS-specific documents and industry guidelines:

- EPA, 1994b, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012;
- EPA, 1994c, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013;
- Kaiser-Hill Company, L.L.C. (K-H), 2002a, General Guidelines for Data Verification and Validation, DA-GR01-v2, October;
- K-H, 2002b, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, October;
- K-H, 2002c, V&V Guidelines for Volatile Organics, DA-SS01-v3, October;
- K-H, 2002d, V&V Guidelines for Semivolatile Organics, DA-SS02-v3, October;

- K-H, 2002e, V&V Guidelines for Metals, DA-SS05-v3, October; and
- Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

This report will be submitted to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) AR for permanent storage 30 days after being provided to CDPHE and/or EPA.

### 13.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements. Validation consists of a technical review of all data that directly support the project decisions so that any limitations of the data relative to project goals are delineated and the associated data are qualified accordingly. The V&V process defines the criteria that constitute data quality, namely PARCCS parameters. Data traceability and archival are also addressed. V&V criteria include the following:

- Chain-of-custody;
- Preservation and hold times;
- Instrument calibrations;
- Preparation blanks;
- Interference check samples (metals);
- Matrix spikes/matrix spike duplicates (MS/MSDs);
- Laboratory control samples (LCSs);
- Field duplicate measurements;
- Chemical yield (radiochemistry);
- Required quantitation limits/minimum detectable activities (sensitivity of chemical and radiochemical measurements, respectively); and
- Sample analysis and preparation methods.

Evaluation of V&V criteria ensures that PARCCS parameters are satisfactory (that is, within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation "flags" or qualifiers to individual records.

Raw hard-copy data (for example, individual analytical data packages) are currently filed by report identification number and maintained by K-H Analytical Services Division; older hard copies may reside in the Federal Center in Lakewood, Colorado. Electronic data are stored in SWD.

Both real and QC data are included on the enclosed CD.

#### 13.2.1 Accuracy

The following measures of accuracy were evaluated:

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- LCSs;
- Surrogates;
- Field blanks; and
- Sample MSs.

Results are compared to method requirements and project goals. The results of these comparisons are summarized for RFCA COCs where the result could impact project decisions. Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes.

### ***Laboratory Control Sample Evaluation***

As indicated in Table 14, LCS analyses were run for all methods except gamma spectroscopy. When the In-Situ Counting System technique is used for gamma spectroscopy, an internal standard approach is used instead of LCSs. The onsite laboratory that performs gamma spectroscopy is therefore not required to provide LCS data.

**Table 14**  
**LCS Summary**

Test Method	Laboratory Batch	Laboratory Control Standard Run
ALPHA SPEC	255453	Yes
ALPHA SPEC	255458	Yes
ALPHA SPEC	257269	Yes
ALPHA SPEC	279704	Yes
ALPHA SPEC	279705	Yes
ALPHA SPEC	279706	Yes
ALPHA SPEC	281635	Yes
ALPHA SPEC	283471	Yes
ALPHA SPEC	283570	Yes
ALPHA SPEC	4032126	Yes
ALPHA SPEC	4032127	Yes
ALPHA SPEC	4032128	Yes
ALPHA SPEC	4069164	Yes
ALPHA SPEC	4069167	Yes
ALPHA SPEC	4069170	Yes
ALPHA SPEC	4069347	Yes
ALPHA SPEC	4069353	Yes
ALPHA SPEC	4069361	Yes
ALPHA SPEC	4076323	Yes
ALPHA SPEC	4076329	Yes
ALPHA SPEC	4076339	Yes
ALPHA SPEC	4078178	Yes
ALPHA SPEC	4078182	Yes
ALPHA SPEC	4078184	Yes
ALPHA SPEC	4191391	Yes
ALPHA SPEC	4191392	Yes

Test Method	Laboratory Batch	Laboratory Control Standard Run
ALPHA SPEC	4191396	Yes
ALPHA SPEC	4194609	Yes
ALPHA SPEC	4194613	Yes
ALPHA SPEC	4194615	Yes
ALPHA SPEC	4196502	Yes
ALPHA SPEC	4196503	Yes
ALPHA SPEC	4196508	Yes
ALPHA SPEC	4198424	Yes
ALPHA SPEC	4198431	Yes
ALPHA SPEC	4198454	Yes
ALPHA SPEC	4203100	Yes
ALPHA SPEC	4203106	Yes
ALPHA SPEC	4203107	Yes
ALPHA SPEC	4264621	Yes
ALPHA SPEC	4265021	Yes
ALPHA SPEC	4265024	Yes
ALPHA SPEC	4310305	Yes
ALPHA SPEC	4310313	Yes
ALPHA SPEC	4310315	Yes
SW-846 1311, 6010, 7470	4218590	Yes
SW-846 1311, 6010, 7470	4220105	Yes
SW-846 1311, 8260	4222242	Yes
SW-846 1311, 8270B	4218380	Yes
SW-846 6010	3261516	Yes
SW-846 6010	3261523	Yes
SW-846 6010	3262469	Yes
SW-846 6010	3262481	Yes
SW-846 6010	3262509	Yes
SW-846 6010	3262511	Yes
SW-846 6010	3265396	Yes
SW-846 6010	3265466	Yes
SW-846 6010	3268610	Yes
SW-846 6010	3268617	Yes
SW-846 6010	3365409	Yes
SW-846 6010	4002142	Yes
SW-846 6010	4009287	Yes
SW-846 6010	4011100	Yes
SW-846 6010	4022514	Yes
SW-846 6010	4022547	Yes
SW-846 6010	4028483	Yes
SW-846 6010	4028490	Yes
SW-846 6010	4063505	Yes
SW-846 6010	4063545	Yes
SW-846 6010	4066116	Yes

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Test Method	Laboratory Batch	Laboratory Control Standard Run
SW-846 6010	4068257	Yes
SW-846 6010	4070566	Yes
SW-846 6010	4071291	Yes
SW-846 6010	4071501	Yes
SW-846 6010	4072238	Yes
SW-846 6010	4177512	Yes
SW-846 6010	4180234	Yes
SW-846 6010	4181227	Yes
SW-846 6010	4181562	Yes
SW-846 6010	4183424	Yes
SW-846 6010	4189113	Yes
SW-846 6010	4189537	Yes
SW-846 6010	4192068	Yes
SW-846 6010	4194372	Yes
SW-846 6010	4194375	Yes
SW-846 6010	4197285	Yes
SW-846 6010	4206068	Yes
SW-846 6010	4208468	Yes
SW-846 6010	4211438	Yes
SW-846 6010	4215249	Yes
SW-846 6010	4216584	Yes
SW-846 6010	4217533	Yes
SW-846 6010	4220115	Yes
SW-846 6010	4272625	Yes
SW-846 6010	4278425	Yes
SW-846 6010	4309578	Yes
SW-846 6010	4310131	Yes
SW-846 6010	4335511	Yes
SW-846 6010	4336530	Yes
SW-846 6010	4338277	Yes
SW-846 6010	4342463	Yes
SW-846 6010	4344298	Yes
SW-846 8082	3154122	Yes
SW-846 8082	4176571	Yes
SW-846 8082	4182531	Yes
SW-846 8082	4189098	Yes
SW-846 8082	4189534	Yes
SW-846 8082	4190494	Yes
SW-846 8082	4194593	Yes
SW-846 8082	4195404	Yes
SW-846 8082	4196526	Yes
SW-846 8082	4197521	Yes
SW-846 8082	4216514	Yes
SW-846 8260	3154336	Yes

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Test Method	Laboratory Batch	Laboratory Control Standard Run
SW-846 8260	3265348	Yes
SW-846 8260	3272303	Yes
SW-846 8260	4029518	Yes
SW-846 8260	4063580	Yes
SW-846 8260	4069471	Yes
SW-846 8260	4072425	Yes
SW-846 8260	4075359	Yes
SW-846 8260	4190300	Yes
SW-846 8260	4191224	Yes
SW-846 8260	4196514	Yes
SW-846 8260	4197374	Yes
SW-846 8260	4198215	Yes
SW-846 8260	4309506	Yes
SW-846 8260	4310239	Yes
SW-846 8260	4310327	Yes
SW-846 8260	4314335	Yes
SW-846 8260	MS1 VOA_040622B	Yes
SW-846 8260	MS1 VOA_040623A	Yes
SW-846 8260	MS1 VOA_040625A	Yes
SW-846 8260	MS1 VOA_040628A	Yes
SW-846 8260	MS1 VOA_040630A	Yes
SW-846 8260	MS1 VOA_040701B	Yes
SW-846 8260	MS1 VOA_040706A	Yes
SW-846 8260	MS1 VOA_040719A	Yes
SW-846 8260	MS1 VOA_040825A	Yes
SW-846 8260	MS1 VOA_040923A	Yes
SW-846 8260	MS1 VOA_041110A	Yes
SW-846 8260	MS1 VOA_041129A	Yes
SW-846 8260	MS1 VOA_041130A	Yes
SW-846 8260	MS1 VOA_041201A	Yes
SW-846 8260	MS2 VOA_030529A	Yes
SW-846 8260	MS2 VOA_030924A	Yes
SW-846 8260	MS2 VOA_040122A	Yes
SW-846 8260	MS2 VOA_040622A	Yes
SW-846 8260	MS2 VOA_040712A	Yes
SW-846 8260	MS2 VOA_040720A	Yes
SW-846 8260	MS2 VOA_040729B	Yes
SW-846 8260	MS3 VOA_030529A	Yes
SW-846 8260	MS3 VOA_030917A	Yes
SW-846 8260	MS3 VOA_030917B	Yes
SW-846 8260	MS3 VOA_030918A	Yes
SW-846 8260	MS3 VOA_030918B	Yes
SW-846 8260	MS3 VOA_030919A	Yes
SW-846 8260	MS3 VOA_030919B	Yes

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Test Method	Laboratory Batch	Laboratory Control Standard Run
SW-846 8260	MS3 VOA_030919C	Yes
SW-846 8260	MS3 VOA_030922B	Yes
SW-846 8260	MS3 VOA_031230A	Yes
SW-846 8260	MS3 VOA_040107A	Yes
SW-846 8260	MS3 VOA_040120A	Yes
SW-846 8260	MS3 VOA_040126A	Yes
SW-846 8260	MS3 VOA_040623A	Yes
SW-846 8260	MS3 VOA_040624A	Yes
SW-846 8260	MS3 VOA_040628A	Yes
SW-846 8260	MS3 VOA_040630A	Yes
SW-846 8260	MS3 VOA_040706A	Yes
SW-846 8260	MS3 VOA_040707A	Yes
SW-846 8260	MS3 VOA_040708A	Yes
SW-846 8260	MS3 VOA_040713A	Yes
SW-846 8260	MS3 VOA_041123A	Yes
SW-846 8270	4177499	Yes
SW-846 8270	4178037	Yes
SW-846 8270	4180495	Yes
SW-846 8270	4182533	Yes
SW-846 8270	4189096	Yes
SW-846 8270	4189535	Yes
SW-846 8270	4194582	Yes
SW-846 8270	4243650	Yes
SW-846 8270	4274374	Yes
SW-846 8270	4321404	Yes
SW-846 8270	4335500	Yes
SW-846 8270	4337292	Yes
SW-846 8270	4342557	Yes

The minimum and maximum LCS results are tabulated, by chemical, for the entire project in Table 15. LCS results outside of tolerances were reviewed to determine whether a potential bias might be indicated. LCS recoveries are not indicative of matrix effects because they are not prepared using site samples. LCS results do indicate whether the laboratory may be introducing a bias in the results. Recoveries reported above the upper limit may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed. The analytes with unacceptable low recoveries were evaluated. If the highest sample result divided by the lowest LCS recovery for that analyte is less than the AL, no further action is taken because any indicated bias is not great enough to affect project decisions. As a result of this analysis, the LCS recoveries for this project did not impact project decisions. The maximum iron concentration (290,000 mg/kg in subsurface soil; Table 8) fails the above test; however, it occurs at 4.5 to 6.5 ft bgs and may be the result of soil heterogeneity.

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**Table 15**  
**LCS Evaluation Summary**

Test Method	CAS No.	Analyte	Min. Result	Max. Result	Unit
SW-846 8260	71-55-6	1,1,1-Trichloroethane	75.15	134	%REC
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	78	122.6	%REC
SW-846 8260	79-00-5	1,1,2-Trichloroethane	77.08	114	%REC
SW-846 8260	75-34-3	1,1-Dichloroethane	80.89	128.7	%REC
SW-846 8260	75-35-4	1,1-Dichloroethene	76	142	%REC
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	56	80	%REC
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	76	149	%REC
SW-846 8260	95-50-1	1,2-Dichlorobenzene	82	138.5	%REC
SW-846 8260	107-06-2	1,2-Dichloroethane	77.8	138	%REC
SW-846 8260	78-87-5	1,2-Dichloropropane	80.27	124.5	%REC
SW-846 8260	106-46-7	1,4-Dichlorobenzene	83	148.2	%REC
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	58	87	%REC
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	54	85	%REC
SW-846 8270	120-83-2	2,4-Dichlorophenol	56	78	%REC
SW-846 8270	105-67-9	2,4-Dimethylphenol	55	82	%REC
SW-846 8270	51-28-5	2,4-Dinitrophenol	24	97	%REC
SW-846 8270	121-14-2	2,4-Dinitrotoluene	57	88	%REC
SW-846 8270	606-20-2	2,6-Dinitrotoluene	57	83	%REC
SW-846 8260	78-93-3	2-Butanone	34.77	111	%REC
SW-846 8270	91-58-7	2-Chloronaphthalene	54	81	%REC
SW-846 8270	95-57-8	2-Chlorophenol	56	81	%REC
SW-846 8270	91-57-6	2-Methylnaphthalene	58	81	%REC
SW-846 8270	95-48-7	2-Methylphenol	58	82	%REC
SW-846 8270	88-74-4	2-Nitroaniline	54	86	%REC
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	37	66	%REC
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	40	100	%REC
SW-846 8270	106-47-8	4-Chloroaniline	26	64	%REC
SW-846 8260	108-10-1	4-Methyl-2-pentanone	64.74	115	%REC
SW-846 8270	106-44-5	4-Methylphenol	58	84	%REC
SW-846 8270	100-02-7	4-Nitrophenol	54	93	%REC
SW-846 8270	83-32-9	Acenaphthene	55	78	%REC
SW-846 8260	67-64-1	Acetone	28.3	127	%REC
SW-846 6010	7429-90-5	Aluminum	87	109	%REC
SW-846 8270	120-12-7	Anthracene	56	84	%REC
SW-846 6010	7440-36-0	Antimony	80	102	%REC
SW-846 8082	12674-11-2	Aroclor-1016	72	92	%REC
SW-846 8082	11096-82-5	Aroclor-1260	89	104	%REC
SW-846 6010	7440-38-2	Arsenic	81	101	%REC
SW-846 6010	7440-39-3	Barium	88	104	%REC
SW-846 8260	71-43-2	Benzene	80	130	%REC
SW-846 8270	56-55-3	Benzo(a)anthracene	53	81	%REC
SW-846 8270	50-32-8	Benzo(a)pyrene	53	83	%REC
SW-846 8270	205-99-2	Benzo(b)fluoranthene	52	86	%REC

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Test Method	CAS No.	Analyte	Min. Result	Max. Result	Unit
SW-846 8270	207-08-9	Benzo(k)fluoranthene	51	85	%REC
SW-846 8270	65-85-0	Benzoic Acid	32	66	%REC
SW-846 8270	100-51-6	Benzyl Alcohol	58	85	%REC
SW-846 6010	7440-41-7	Beryllium	86	110	%REC
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	49	81	%REC
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	50	80	%REC
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	54	93	%REC
SW-846 8260	75-27-4	Bromodichloromethane	83.26	129.1	%REC
SW-846 8260	75-25-2	Bromoform	80.18	126.1	%REC
SW-846 8260	74-83-9	Bromomethane	55.1	154.8	%REC
SW-846 8270	85-68-7	Butylbenzylphthalate	55	89	%REC
SW-846 6010	7440-43-9	Cadmium	84	101	%REC
SW-846 8260	75-15-0	Carbon Disulfide	67	175.3	%REC
SW-846 8260	56-23-5	Carbon Tetrachloride	76.86	142.4	%REC
SW-846 8260	108-90-7	Chlorobenzene	84	147.3	%REC
SW-846 8260	75-00-3	Chloroethane	59.77	153.2	%REC
SW-846 8260	67-66-3	Chloroform	78.94	129	%REC
SW-846 8260	74-87-3	Chloromethane	45.13	154	%REC
SW-846 6010	7440-47-3	Chromium	86	103	%REC
SW-846 8270	218-01-9	Chrysene	52	80	%REC
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	79	125	%REC
SW-846 6010	7440-48-4	Cobalt	83	100	%REC
SW-846 6010	7440-50-8	Copper	90	101	%REC
SW-846 8270	84-74-2	Di-n-butylphthalate	56	89	%REC
SW-846 8270	117-84-0	Di-n-octylphthalate	52	85	%REC
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	53	81	%REC
SW-846 8270	132-64-9	Dibenzofuran	59	85	%REC
SW-846 8260	124-48-1	Dibromochloromethane	82.77	122.8	%REC
SW-846 8270	84-66-2	Diethylphthalate	57	81	%REC
SW-846 8270	131-11-3	Dimethylphthalate	57	82	%REC
SW-846 8260	100-41-4	Ethylbenzene	83.03	160.4	%REC
SW-846 8270	206-44-0	Fluoranthene	53	88	%REC
SW-846 8270	86-73-7	Fluorene	57	81	%REC
SW-846 8270	118-74-1	Hexachlorobenzene	54	80	%REC
SW-846 8260	87-68-3	Hexachlorobutadiene	76.77	203.6	%REC
SW-846 8270	87-68-3	Hexachlorobutadiene	56	79	%REC
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	38	71	%REC
SW-846 8270	67-72-1	Hexachloroethane	57	77	%REC
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	54	80	%REC
SW-846 6010	7439-89-6	Iron	90	108	%REC
SW-846 8270	78-59-1	Isophorone	57	75	%REC
SW-846 6010	7439-92-1	Lead	85	102	%REC
SW-846 6010	7439-93-2	Lithium	92	108	%REC
SW-846 6010	7439-96-5	Manganese	87	102	%REC
SW-846 6010	7439-97-6	Mercury	92	113	%REC

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Test Method	CAS No.	Analyte	Min. Result	Max. Result	Unit
SW-846 8260	75-09-2	Methylene chloride	78	120.5	%REC
SW-846 6010	7439-98-7	Molybdenum	82	103	%REC
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	62	155	%REC
SW-846 8270	621-64-7	n-Nitrosodipropylamine	51	81	%REC
SW-846 8270	91-20-3	Naphthalene	55	77	%REC
SW-846 8260	91-20-3	Naphthalene	69	120.4	%REC
SW-846 6010	7440-02-0	Nickel	85	101	%REC
SW-846 8270	98-95-3	Nitrobenzene	54	82	%REC
SW-846 8270	87-86-5	Pentachlorophenol	43	72	%REC
SW-846 8270	108-95-2	Phenol	56	80	%REC
SW-846 8270	129-00-0	Pyrene	51	88	%REC
SW-846 6010	7782-49-2	Selenium	81	103	%REC
SW-846 6010	7440-22-4	Silver	87	105	%REC
SW-846 6010	7440-24-6	Strontium	88	102	%REC
SW-846 8260	100-42-5	Styrene	83.36	143.6	%REC
SW-846 8260	127-18-4	Tetrachloroethene	84	168.1	%REC
SW-846 6010	7440-31-5	Tin	81	102	%REC
SW-846 8260	108-88-3	Toluene	83	141.8	%REC
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	86.33	124.7	%REC
SW-846 8260	79-01-6	Trichloroethene	79.45	140.9	%REC
SW-846 6010	11-09-6	Uranium, Total	92	106	%REC
SW-846 6010	7440-62-2	Vanadium	86	102	%REC
SW-846 8260	75-01-4	Vinyl chloride	55.87	169.8	%REC
SW-846 8260	1330-20-7	Xylene	81.81	156.6	%REC
SW-846 6010	7440-66-6	Zinc	80	105	%REC

### Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 16. Surrogate frequency was adequate based on at least one set per sample. The minimum and maximum surrogate results are also tabulated, by chemical, for the entire project. Surrogates are added to every sample, and therefore, surrogate recoveries only impact individual samples. Unacceptable surrogate recoveries can indicate potential matrix effects. The highest and lowest surrogate recoveries for this project were reviewed, and no results affected project decisions. All organic compounds with surrogate recoveries had concentrations less than RLs, except for toluene. However, toluene concentrations were well below the WRW AL.

### Field Blank Evaluation

Results of the field blank analyses are given in Table 17. Detectable amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminant is detected in the associated real samples. When the real result is less than 10 times the blank result for laboratory contaminants and 5 times the result for non-laboratory contaminants, the real result is eliminated. None of the chemicals were detected in the blanks at concentrations greater than one-tenth the AL. Therefore, blank contamination did not adversely impact project decisions.

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**Table 16**  
**Surrogate Recovery Summary**

VOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum Concentration	Maximum Concentration	Unit
172	4-Bromofluorobenzene	84	146.2	%REC
172	Deuterated 1,2-dichloroethane	77	122.7	%REC
172	Deuterated Toluene	86	114.2	%REC
SVOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum Concentration	Maximum Concentration	Unit
78	2-Fluorobiphenyl	45	85	%REC
78	2-Fluorophenol	46	81	%REC
78	Deuterated Nitrobenzene	45	84	%REC
78	p-Terphenyl-d14	47	112	%REC

**Table 17**  
**Field Blank Summary**

Laboratory	CAS No.	Analyte	Sample QC Code	Detected Result	Unit
URS	106-46-7	1,4-Dichlorobenzene	EB	2.1	ug/L
URS	78-93-3	2-Butanone	FB	13	ug/L
URS	78-93-3	2-Butanone	TB	91	ug/L
URS	108-10-1	4-Methyl-2-pentanone	RNS	10	ug/L
URS	67-64-1	Acetone	FB	14	ug/L
URS	67-64-1	Acetone	TB	32	ug/L
URS	56-23-5	Carbon Tetrachloride	TB	37.3	ug/L
URS	67-66-3	Chloroform	TB	5.61	ug/L
URS	91-20-3	Naphthalene	EB	1.5	ug/L
URS	91-20-3	Naphthalene	TB	2.1	ug/L
URS	91-20-3	Naphthalene	FB	1.4	ug/L
URS	108-88-3	Toluene	EB	1.9	ug/L
URS	108-88-3	Toluene	RNS	2.4	ug/L
URS	108-88-3	Toluene	FB	2.2	ug/L
URS	108-88-3	Toluene	TB	3.7	ug/L
URS	15117-96-1	Uranium-235	FB	0.213	pCi/g
URS	15117-96-1	Uranium-235	RNS	0.189	pCi/g
URS	15117-96-1	Uranium-235	EB	0.218	pCi/g
URS	7440-61-1	Uranium-238	RNS	3.08	pCi/g
URS	7440-61-1	Uranium-238	FB	3.23	pCi/g
URS	7440-61-1	Uranium-238	EB	3.28	pCi/g
Field blank (EB = equipment, FB = field, RNS = rinse, TB = trip) results greater than detection limits (not "U" qualified).					

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### Sample Matrix Spike Evaluation

The minimum and maximum MS results are summarized by chemical for the entire project in Table 18. Organic analytes with unacceptable low recoveries resulted in a review of the LCS recoveries. According to the EPA data validation guidelines (1994b), if organic MS recoveries are low, the data reviewer may use the MS and MSD results in conjunction with other QC criteria. For this project, the LCS recoveries were checked, and these checks indicate no decisions were impacted for organic analytes. For inorganics, the associated maximum sample results were divided by the lowest percent recovery for each analyte. If the resulting number was less than the AL, decisions were not impacted, and no action was taken. For this project, all results were acceptable, except for iron. The maximum iron concentration fails the above test; however, it occurs at 4.5 to 6.5 ft bgs and may be the result of soil heterogeneity. The low recoveries for aluminum, fluoranthene, iron, manganese, mercury and pyrene were 0 percent, and the low recovery for 4,6-dinitro-2-methylphenol, copper, hexachlorobutadiene and strontium were 19, 27, 13.66 and 18 percent, respectively. However, the sample results for these chemicals are significantly less than the WRW ALs (Tables 7 and 8), thus no decisions were impacted.

**Table 18**  
**Sample MS Evaluation Summary**

Test Method	CAS No.	Analyte	Min. Result	Max. Result	Unit	No. of Samples	No. of Lab Batches
SW-846 8260	71-55-6	1,1,1-Trichloroethane	70	123	%REC	30	31
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	51	122.7	%REC	30	31
SW-846 8260	79-00-5	1,1,2-Trichloroethane	76	120.2	%REC	30	31
SW-846 8260	75-34-3	1,1-Dichloroethane	68	125	%REC	30	31
SW-846 8260	75-35-4	1,1-Dichloroethene	67	119.7	%REC	30	31
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	55	70	%REC	9	9
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	27.79	100.4	%REC	30	31
SW-846 8260	95-50-1	1,2-Dichlorobenzene	68	107.2	%REC	30	31
SW-846 8260	107-06-2	1,2-Dichloroethane	70	136	%REC	30	31
SW-846 8260	78-87-5	1,2-Dichloropropane	70	118	%REC	30	31
SW-846 8260	106-46-7	1,4-Dichlorobenzene	68	111.6	%REC	30	31
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	60	87	%REC	9	9
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	61	83	%REC	9	9
SW-846 8270	120-83-2	2,4-Dichlorophenol	56	73	%REC	9	9
SW-846 8270	105-67-9	2,4-Dimethylphenol	61	74	%REC	9	9
SW-846 8270	51-28-5	2,4-Dinitrophenol	19	84	%REC	9	9
SW-846 8270	121-14-2	2,4-Dinitrotoluene	57	91	%REC	9	9
SW-846 8270	606-20-2	2,6-Dinitrotoluene	62	86	%REC	9	9
SW-846 8260	78-93-3	2-Butanone	66	516.5	%REC	30	31
SW-846 8270	91-58-7	2-Chloronaphthalene	60	72	%REC	9	9
SW-846 8270	95-57-8	2-Chlorophenol	55	70	%REC	9	9
SW-846 8270	91-57-6	2-Methylnaphthalene	59	72	%REC	9	9
SW-846 8270	95-48-7	2-Methylphenol	58	73	%REC	9	9
SW-846 8270	88-74-4	2-Nitroaniline	61	94	%REC	9	9
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	30	81	%REC	9	9

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Test Method	CAS No.	Analyte	Min. Result	Max. Result	Unit	No. of Samples	No. of Lab Batches
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	19	95	%REC	9	9
SW-846 8270	106-47-8	4-Chloroaniline	33	63	%REC	9	9
SW-846 8260	108-10-1	4-Methyl-2-pentanone	77	254.6	%REC	30	31
SW-846 8270	106-44-5	4-Methylphenol	60	76	%REC	9	9
SW-846 8270	100-02-7	4-Nitrophenol	53	87	%REC	9	9
SW-846 8270	83-32-9	Acenaphthene	52	76	%REC	9	9
SW-846 8260	67-64-1	Acetone	62	506.8	%REC	30	31
SW-846 6010	7429-90-5	Aluminum	0	8550	%REC	18	18
SW-846 8270	120-12-7	Anthracene	51	88	%REC	9	9
SW-846 6010	7440-36-0	Antimony	34	67	%REC	18	18
SW-846 8082	12674-11-2	Aroclor-1016	72	131	%REC	11	11
SW-846 8082	11096-82-5	Aroclor-1260	85	112	%REC	11	11
SW-846 6010	7440-38-2	Arsenic	85	97	%REC	18	18
SW-846 6010	7440-39-3	Barium	67	150	%REC	18	18
SW-846 8260	71-43-2	Benzene	70	117.2	%REC	30	31
SW-846 8270	56-55-3	Benzo(a)anthracene	42	87	%REC	9	9
SW-846 8270	50-32-8	Benzo(a)pyrene	55	86	%REC	9	9
SW-846 8270	205-99-2	Benzo(b)fluoranthene	49	92	%REC	9	9
SW-846 8270	207-08-9	Benzo(k)fluoranthene	40	82	%REC	9	9
SW-846 8270	65-85-0	Benzoic Acid	29	79	%REC	9	9
SW-846 8270	100-51-6	Benzyl Alcohol	55	73	%REC	9	9
SW-846 6010	7440-41-7	Beryllium	84	108	%REC	18	18
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	53	68	%REC	9	9
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	52	67	%REC	9	9
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	62	92	%REC	9	9
SW-846 8260	75-27-4	Bromodichloromethane	71	123	%REC	30	31
SW-846 8260	75-25-2	Bromoform	75	123.6	%REC	30	31
SW-846 8260	74-83-9	Bromomethane	24.94	170.1	%REC	30	31
SW-846 8270	85-68-7	Butylbenzylphthalate	62	91	%REC	9	9
SW-846 6010	7440-43-9	Cadmium	76	365	%REC	18	18
SW-846 8260	75-15-0	Carbon Disulfide	21.45	128	%REC	30	31
SW-846 8260	56-23-5	Carbon Tetrachloride	75	3830	%REC	30	31
SW-846 8260	108-90-7	Chlorobenzene	71	116.3	%REC	30	31
SW-846 8260	75-00-3	Chloroethane	33.08	169.2	%REC	30	31
SW-846 8260	67-66-3	Chloroform	76	124	%REC	30	31
SW-846 8260	74-87-3	Chloromethane	57	189.9	%REC	30	31
SW-846 6010	7440-47-3	Chromium	30	147	%REC	18	18
SW-846 8270	218-01-9	Chrysene	41	83	%REC	9	9
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	80	110.7	%REC	30	31
SW-846 6010	7440-48-4	Cobalt	83	102	%REC	18	18
SW-846 6010	7440-50-8	Copper	27	119	%REC	18	18
SW-846 8270	84-74-2	Di-n-butylphthalate	62	91	%REC	9	9
SW-846 8270	117-84-0	Di-n-octylphthalate	58	93	%REC	9	9
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	55	84	%REC	9	9

Test Method	CAS No.	Analyte	Min. Result	Max. Result	Unit	No. of Samples	No. of Lab Batches
SW-846 8270	132-64-9	Dibenzofuran	61	83	%REC	9	9
SW-846 8260	124-48-1	Dibromochloromethane	73.53	116	%REC	30	31
SW-846 8270	84-66-2	Diethylphthalate	62	85	%REC	9	9
SW-846 8270	131-11-3	Dimethylphthalate	60	84	%REC	9	9
SW-846 8260	100-41-4	Ethylbenzene	68.88	110.7	%REC	30	31
SW-846 8270	206-44-0	Fluoranthene	0	82	%REC	9	9
SW-846 8270	86-73-7	Fluorene	57	80	%REC	9	9
SW-846 8270	118-74-1	Hexachlorobenzene	54	85	%REC	9	9
SW-846 8260	87-68-3	Hexachlorobutadiene	13.66	103	%REC	30	31
SW-846 8270	87-68-3	Hexachlorobutadiene	57	68	%REC	9	9
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	26	52	%REC	9	9
SW-846 8270	67-72-1	Hexachloroethane	53	69	%REC	9	9
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	46	84	%REC	9	9
SW-846 6010	7439-89-6	Iron	0	4130	%REC	18	18
SW-846 8270	78-59-1	Isophorone	58	70	%REC	9	9
SW-846 6010	7439-92-1	Lead	72	115	%REC	18	18
SW-846 6010	7439-93-2	Lithium	93	110	%REC	18	18
SW-846 6010	7439-96-5	Manganese	0	1260	%REC	18	18
SW-846 6010	7439-97-6	Mercury	0	106	%REC	14	14
SW-846 8260	75-09-2	Methylene chloride	59	111.7	%REC	30	31
SW-846 6010	7439-98-7	Molybdenum	85	93	%REC	18	18
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	70	121	%REC	9	9
SW-846 8270	621-64-7	n-Nitrosodipropylamine	55	71	%REC	9	9
SW-846 8270	91-20-3	Naphthalene	55	69	%REC	9	9
SW-846 8260	91-20-3	Naphthalene	50.12	108.3	%REC	30	31
SW-846 6010	7440-02-0	Nickel	86	108	%REC	18	18
SW-846 8270	98-95-3	Nitrobenzene	58	70	%REC	9	9
SW-846 8270	87-86-5	Pentachlorophenol	45	73	%REC	9	9
SW-846 8270	108-95-2	Phenol	56	70	%REC	9	9
SW-846 8270	129-00-0	Pyrene	0	81	%REC	9	9
SW-846 6010	7782-49-2	Selenium	86	99	%REC	18	18
SW-846 6010	7440-22-4	Silver	91	144	%REC	18	18
SW-846 6010	7440-24-6	Strontium	18	159	%REC	18	18
SW-846 8260	100-42-5	Styrene	70.01	114.9	%REC	30	31
SW-846 8260	127-18-4	Tetrachloroethene	61.5	112	%REC	30	31
SW-846 6010	7440-31-5	Tin	82	92	%REC	18	18
SW-846 8260	108-88-3	Toluene	74	114	%REC	30	31
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	71.84	119	%REC	30	31
SW-846 8260	79-01-6	Trichloroethene	71	134.2	%REC	30	31
SW-846 6010	11-09-6	Uranium, Total	89	99	%REC	18	18
SW-846 6010	7440-62-2	Vanadium	75	148	%REC	18	18
SW-846 8260	75-01-4	Vinyl chloride	59.16	129	%REC	30	31
SW-846 8260	1330-20-7	Xylene	68.03	116.8	%REC	30	31
SW-846 6010	7440-66-6	Zinc	37	148	%REC	18	18

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## 13.2.2 Precision

*Sample Matrix Spike Duplicate Evaluation*

Laboratory precision is measured through use of MSDs, as summarized in Table 19. Analytes with the highest relative percent differences (RPDs) were reviewed by comparing the highest sample result to the WRW AL. For analytes with RPDs greater than 35 percent, if the highest sample concentrations were sufficiently below the AL, no further action is needed. For this project, the review indicated decisions were not impacted.

**Table 19**  
**Sample MSD Evaluation Summary**

Test Method	CAS No.	Analyte	Max. RPD
SW-846 8260	71-55-6	1,1,1-Trichloroethane	16.423
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	149.488
SW-846 8260	79-00-5	1,1,2-Trichloroethane	16.284
SW-846 8260	75-34-3	1,1-Dichloroethane	16.467
SW-846 8260	75-35-4	1,1-Dichloroethene	17.155
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	32.258
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	24.299
SW-846 8260	95-50-1	1,2-Dichlorobenzene	30.894
SW-846 8260	107-06-2	1,2-Dichloroethane	18.934
SW-846 8260	78-87-5	1,2-Dichloropropane	15.193
SW-846 8260	106-46-7	1,4-Dichlorobenzene	28.571
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	29.371
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	26.950
SW-846 8270	120-83-2	2,4-Dichlorophenol	27.692
SW-846 8270	105-67-9	2,4-Dimethylphenol	23.188
SW-846 8270	51-28-5	2,4-Dinitrophenol	37.419
SW-846 8270	121-14-2	2,4-Dinitrotoluene	31.169
SW-846 8270	606-20-2	2,6-Dinitrotoluene	23.129
SW-846 8260	78-93-3	2-Butanone	36.999
SW-846 8270	91-58-7	2-Chloronaphthalene	19.549
SW-846 8270	95-57-8	2-Chlorophenol	20.561
SW-846 8270	91-57-6	2-Methylnaphthalene	18.182
SW-846 8270	95-48-7	2-Methylphenol	18.182
SW-846 8270	88-74-4	2-Nitroaniline	25.166
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	35.616
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	39.456
SW-846 8270	106-47-8	4-Chloroaniline	37.037
SW-846 8260	108-10-1	4-Methyl-2-pentanone	16.138
SW-846 8270	106-44-5	4-Methylphenol	22.857
SW-846 8270	100-02-7	4-Nitrophenol	47.368
SW-846 8270	83-32-9	Acenaphthene	22.556
SW-846 8260	67-64-1	Acetone	45.682
SW-846 6010	7429-90-5	Aluminum	74.510
SW-846 8270	120-12-7	Anthracene	27.338

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Test Method	CAS No.	Analyte	Max. RPD
SW-846 6010	7440-36-0	Antimony	70.476
SW-846 8082	12674-11-2	Aroclor-1016	30.366
SW-846 8082	11096-82-5	Aroclor-1260	14.857
SW-846 6010	7440-38-2	Arsenic	12.195
SW-846 6010	7440-39-3	Barium	58.960
SW-846 8260	71-43-2	Benzene	16.199
SW-846 8270	56-55-3	Benzo(a)anthracene	28.986
SW-846 8270	50-32-8	Benzo(a)pyrene	29.008
SW-846 8270	205-99-2	Benzo(b)fluoranthene	32.258
SW-846 8270	207-08-9	Benzo(k)fluoranthene	36.735
SW-846 8270	65-85-0	Benzoic Acid	61.905
SW-846 8270	100-51-6	Benzyl Alcohol	19.469
SW-846 6010	7440-41-7	Beryllium	10.233
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	20.290
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	18.947
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	25.503
SW-846 8260	75-27-4	Bromodichloromethane	13.985
SW-846 8260	75-25-2	Bromoform	12.683
SW-846 8260	74-83-9	Bromomethane	113.898
SW-846 8270	85-68-7	Butylbenzylphthalate	28.571
SW-846 6010	7440-43-9	Cadmium	18.182
SW-846 8260	75-15-0	Carbon Disulfide	18.462
SW-846 8260	56-23-5	Carbon Tetrachloride	14.614
SW-846 8260	108-90-7	Chlorobenzene	14.073
SW-846 8260	75-00-3	Chloroethane	59.964
SW-846 8260	67-66-3	Chloroform	20.747
SW-846 8260	74-87-3	Chloromethane	23.473
SW-846 6010	7440-47-3	Chromium	44.898
SW-846 8270	218-01-9	Chrysene	29.167
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	15.261
SW-846 6010	7440-48-4	Cobalt	59.873
SW-846 6010	7440-50-8	Copper	30.943
SW-846 8270	84-74-2	Di-n-butylphthalate	29.333
SW-846 8270	117-84-0	Di-n-octylphthalate	21.583
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	32.836
SW-846 8270	132-64-9	Dibenzofuran	23.776
SW-846 8260	124-48-1	Dibromochloromethane	16.276
SW-846 8270	84-66-2	Diethylphthalate	26.207
SW-846 8270	131-11-3	Dimethylphthalate	22.222
SW-846 8260	100-41-4	Ethylbenzene	14.666
SW-846 8270	206-44-0	Fluoranthene	149.550
SW-846 8270	86-73-7	Fluorene	26.471
SW-846 8270	118-74-1	Hexachlorobenzene	27.200
SW-846 8270	87-68-3	Hexachlorobutadiene	25.926
SW-846 8260	87-68-3	Hexachlorobutadiene	58.537

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Test Method	CAS No.	Analyte	Max. RPD
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	23.656
SW-846 8270	67-72-1	Hexachloroethane	21.782
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	33.333
SW-846 6010	7439-89-6	Iron	132.349
SW-846 8270	78-59-1	Isophorone	18.182
SW-846 6010	7439-92-1	Lead	31.472
SW-846 6010	7439-93-2	Lithium	6.635
SW-846 6010	7439-96-5	Manganese	85.714
SW-846 6010	7439-97-6	Mercury	51.969
SW-846 8260	75-09-2	Methylene chloride	26.475
SW-846 6010	7439-98-7	Molybdenum	40.367
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	30.075
SW-846 8270	621-64-7	n-Nitrosodipropylamine	20.000
SW-846 8260	91-20-3	Naphthalene	20.800
SW-846 8270	91-20-3	Naphthalene	22.642
SW-846 6010	7440-02-0	Nickel	20.408
SW-846 8270	98-95-3	Nitrobenzene	20.000
SW-846 8270	87-86-5	Pentachlorophenol	30.631
SW-846 8270	108-95-2	Phenol	19.469
SW-846 8270	129-00-0	Pyrene	93.548
SW-846 6010	7782-49-2	Selenium	10.778
SW-846 6010	7440-22-4	Silver	36.827
SW-846 6010	7440-24-6	Strontium	45.059
SW-846 8260	100-42-5	Styrene	16.098
SW-846 8260	127-18-4	Tetrachloroethene	15.841
SW-846 6010	7440-31-5	Tin	41.509
SW-846 8260	108-88-3	Toluene	14.365
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	14.245
SW-846 8260	79-01-6	Trichloroethene	22.604
SW-846 6010	11-09-6	Uranium, Total	10.405
SW-846 6010	7440-62-2	Vanadium	23.923
SW-846 8260	75-01-4	Vinyl chloride	26.316
SW-846 8260	1330-20-7	Xylene	17.636
SW-846 6010	7440-66-6	Zinc	67.901

### Field Duplicate Evaluation

Field duplicate results reflect sampling precision, or overall repeatability of the sampling process. The frequency of field duplicate collection should exceed 1 field duplicate per 20 real samples, or 5 percent. Table 20 indicates that field duplicate frequencies were adequate. No duplicate metal analyses were conducted using Method 6200; however, sufficient duplicate metal analyses were conducted using Method 6010. No duplicate TPH analyses (Method 8440) were conducted; however, TPH concentrations were well below the RFCA standard.

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**Table 20**  
**Field Duplicate Sample Frequency Summary**

Test Method	No. of Real Samples	No. of Duplicate Samples	% Duplicate Samples
Alpha Spectroscopy	58	6	10.34%
Gamma Spectroscopy	268	15	5.60%
SW-846 6010	174	11	6.32%
SW-846 6200	3	0	0.00%
SW-846 8082	68	6	8.82%
SW-846 8260	171	9	5.26%
SW-846 8270	78	4	5.13%
SW8440 PREP SW3560(9)	5	0	0.00%

The RPD values indicate how much variation exists in the field duplicate analyses. EPA data validation guidelines state that "there are no required review criteria for field duplicate analyses comparability" (EPA 1994b). For the DQA, the highest RPD values (Table 21) were reviewed. For this project, project decisions were not impacted because the decision whether to remediate is based on not only an AL comparison but also the results of the SSRS.

**Table 21**  
**RPD Evaluation Summary**

Lab Code	Test Method	Analyte	Max RPD
ESTLDEN	SW-846 8260	1,1,1-Trichloroethane	6.780
ESTLDEN	SW-846 8260	1,1-Dichloroethane	6.780
ESTLDEN	SW-846 8260	1,2,4-Trichlorobenzene	6.780
ESTLDEN	SW-846 8270	1,2,4-Trichlorobenzene	5.195
ESTLDEN	SW-846 8260	1,2-Dichloroethane	6.780
ESTLDEN	SW-846 8270	2,4,5-Trichlorophenol	5.195
ESTLDEN	SW-846 8270	2,4,6-Trichlorophenol	5.195
ESTLDEN	SW-846 8270	2,4-Dichlorophenol	5.195
ESTLDEN	SW-846 8270	2,4-Dimethylphenol	5.195
ESTLDEN	SW-846 8270	2,4-Dinitrophenol	5.000
ESTLDEN	SW-846 8270	2-Chloronaphthalene	5.195
ESTLDEN	SW-846 8270	2-Chlorophenol	5.195
ESTLDEN	SW-846 8270	2-Methylnaphthalene	5.195
ESTLDEN	SW-846 8270	2-Methylphenol	5.195
ESTLDEN	SW-846 8270	2-Nitroaniline	5.000
ESTLDEN	SW-846 8270	3,3'-Dichlorobenzidine	6.452
ESTLDEN	SW-846 8270	4,6-Dinitro-2-methylphenol	5.000
ESTLDEN	SW-846 8270	4-Chloroaniline	6.452
ESTLDEN	SW-846 8260	4-Methyl-2-pentanone	8.333
ESTLDEN	SW-846 8270	4-Methylphenol	5.195
ESTLDEN	SW-846 8270	4-Nitrophenol	5.000
ESTLDEN	SW-846 8270	Acenaphthene	23.729
ESTLDEN	SW-846 6010	Aluminum	137.349
ESTLDEN	SW-846 8270	Anthracene	73.684
ESTLDEN	SW-846 8082	Aroclor-1016	7.595

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Lab Code	Test Method	Analyte	Max RPD
ESTLDEN	SW-846 8082	Aroclor-1221	7.595
ESTLDEN	SW-846 8082	Aroclor-1232	7.595
ESTLDEN	SW-846 8082	Aroclor-1242	7.595
ESTLDEN	SW-846 8082	Aroclor-1254	7.595
ESTLDEN	SW-846 8082	Aroclor-1260	7.595
ESTLDEN	SW-846 6010	Arsenic	54.839
ESTLDEN	SW-846 6010	Barium	127.273
ESTLDEN	SW-846 8260	Benzene	6.780
ESTLDEN	SW-846 8270	Benzo(a)anthracene	50.000
ESTLDEN	SW-846 8270	Benzo(a)pyrene	53.435
ESTLDEN	SW-846 8270	Benzo(b)fluoranthene	56.881
ESTLDEN	SW-846 8270	Benzo(k)fluoranthene	118.367
ESTLDEN	SW-846 8270	Benzoic Acid	5.000
ESTLDEN	SW-846 8270	Benzyl Alcohol	6.452
ESTLDEN	SW-846 6010	Beryllium	36.242
ESTLDEN	SW-846 8270	bis(2-Chloroethyl)ether	5.195
ESTLDEN	SW-846 8270	bis(2-Chloroisopropyl)ether	5.195
ESTLDEN	SW-846 8270	bis(2-Ethylhexyl)phthalate	149.376
ESTLDEN	SW-846 8260	Bromodichloromethane	6.780
ESTLDEN	SW-846 8260	Bromoform	6.780
ESTLDEN	SW-846 8270	Butylbenzylphthalate	5.195
ESTLDEN	SW-846 6010	Cadmium	130.579
ESTLDEN	SW-846 8260	Carbon Disulfide	6.780
ESTLDEN	SW-846 8260	Chlorobenzene	6.780
ESTLDEN	SW-846 8260	Chloroform	6.780
ESTLDEN	SW-846 6010	Chromium	101.754
ESTLDEN	SW-846 8270	Chrysene	48.588
ESTLDEN	SW-846 8260	cis-1,3-Dichloropropene	6.780
ESTLDEN	SW-846 6010	Cobalt	86.957
ESTLDEN	SW-846 6010	Copper	50.000
ESTLDEN	SW-846 8270	Di-n-butylphthalate	5.195
ESTLDEN	SW-846 8270	Di-n-octylphthalate	5.195
ESTLDEN	SW-846 8270	Dibenz(a,h)anthracene	107.692
ESTLDEN	SW-846 8270	Dibenzofuran	5.195
ESTLDEN	SW-846 8260	Dibromochloromethane	6.780
ESTLDEN	SW-846 8270	Diethylphthalate	5.195
ESTLDEN	SW-846 8270	Dimethylphthalate	5.195
ESTLDEN	SW-846 8270	Fluoranthene	129.114
ESTLDEN	SW-846 8270	Fluorene	18.182
ESTLDEN	SW-846 8270	Hexachlorobenzene	5.195
ESTLDEN	SW-846 8270	Hexachlorobutadiene	5.195
ESTLDEN	SW-846 8270	Hexachlorocyclopentadiene	5.195
ESTLDEN	SW-846 8270	Hexachloroethane	5.195
ESTLDEN	SW-846 8270	Indeno(1,2,3-cd)pyrene	64.407
ESTLDEN	SW-846 6010	Iron	93.706

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Lab Code	Test Method	Analyte	Max RPD
ESTLDEN	SW-846 8270	Isophorone	5.195
ESTLDEN	SW-846 6010	Lead	110.204
ESTLDEN	SW-846 6010	Lithium	113.364
ESTLDEN	SW-846 6010	Manganese	144.304
ESTLDEN	SW-846 6010	Mercury	70.968
ESTLDEN	SW-846 8260	Methylene chloride	6.780
ESTLDEN	SW-846 8270	n-Nitrosodiphenylamine	5.195
ESTLDEN	SW-846 8270	n-Nitrosodipropylamine	5.195
ESTLDEN	SW-846 8260	Naphthalene	6.780
ESTLDEN	SW-846 8270	Naphthalene	5.195
ESTLDEN	SW-846 6010	Nickel	110.078
ESTLDEN	SW-846 8270	Nitrobenzene	5.195
ESTLDEN	SW-846 8270	Pentachlorophenol	5.000
ESTLDEN	SW-846 8270	Phenol	5.195
ESTLDEN	ALPHA SPEC	Plutonium-239/240	145.571
ESTLDEN	SW-846 8270	Pyrene	36.735
ESTLDEN	SW-846 6010	Strontium	88.372
ESTLDEN	SW-846 8260	Styrene	6.780
ESTLDEN	SW-846 8260	Tetrachloroethene	6.780
ESTLDEN	SW-846 8260	Toluene	6.780
ESTLDEN	SW-846 8260	trans-1,3-Dichloropropene	6.780
ESTLDEN	SW-846 8260	Trichloroethene	6.780
ESTLDEN	SW-846 6010	Vanadium	107.692
ESTLDEN	SW-846 6010	Zinc	144.498

### 13.2.3 Completeness

Based on original project DQOs, a minimum of 25 percent of ER Program analytical (and radiological) results must be formally verified and validated. Of that percentage, no more than 10 percent of the results may be rejected, which ensures that analytical laboratory practices are consistent with quality requirements. Table 22 lists the number and percentage of validated records (codes without "1"), number and percentage of verified records (codes with "1"), and percentage of rejected records for each analyte group for this project. No records out of 2,543 validated records were rejected. For this project, the percentages of analyses validated were below Program requirements; however, the ER Program V&V goal of 25 percent is being met.

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**Table 22**  
**Validation and Verification Summary**

Validation Qualifier Code	Total of CAS Number	Alpha Spectroscopy	Gamma Spectroscopy	SW-846 6010	SW-846 6200	SW-846 8082	SW-846 8260	SW-846 8270
No V&V	6	0	0	0	0	0	6	0
I	125	0	2	1	0	0	72	50
J	233	0	0	213	0	2	4	14
J1	773	10	0	735	6	1	21	0
JB	7	0	0	0	0	0	7	0
JB1	19	0	0	0	0	0	19	0
UJ	117	0	0	38	0	0	44	35
UJ1	491	0	0	200	6	0	253	32
V	2186	40	210	554	0	96	1127	159
V1	12860	240	594	2261	45	377	5577	3766
Total	16817	290	806	4002	57	476	7130	4056
Validated	2543	40	210	805	0	98	1182	208
% Validated	15.12%	13.79%	26.05%	20.11%	0.00%	20.59%	16.58%	5.13%
Verified	14268	250	596	3197	57	378	5942	3848
% Verified	84.84%	86.21%	73.95%	79.89%	100.00%	79.41%	83.34%	94.87%
Validated = J, JB, UJ, V Verified = I, J1, JB1, UJ1, V1								

### 13.2.4 Sensitivity

RLs, in units of  $\mu\text{g/kg}$  for organics,  $\text{mg/kg}$  for metals and TPH, and  $\text{pCi/g}$  for radionuclides, were compared with RFCA WRW ALs and the TPH standard. Adequate sensitivities of analytical methods were attained for all COCs that affected remediation decisions. "Adequate" sensitivity is defined as an RL less than an analyte's associated AL, typically less than one-half the AL.

### 13.3 Summary of Data Quality

RPDs greater than 35 percent indicate the sampling precision limits of some analytes have been exceeded. Also, the validation percentages for the project are below 25 percent; however, the ER Program V&V goal of 25 percent is being met. No records were rejected. Data collected and used for IHSS Group 700-3 are adequate for decision making.

## 14.0 CONCLUSIONS

Results of the accelerated action justify NFAA for IHSS Group 700-3, excluding UBCs 776, 777 and 778 and Tank T-18. These UBCs and Tank T-18 are addressed in the Closeout Report for IHSS 700-3, Volume II. NFAA justification is based on the following:

- NFAA is appropriate based on surface soil data. All residual surface soil concentrations are less than WRW ALs.

- NFAA is appropriate based on the SSRS. The accelerated action involved removal of a significant source of VOCs and the addition of HRC® to continue to reduce residual VOC contamination. Also, any residual VOC contamination is more than 20 ft bgs, and subsurface soil in the area is not subject to significant erosion.
- NFAA is indicated by the stewardship evaluation.

## 15.0 REFERENCES

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DOE, 2003a, Industrial Area Sampling and Analysis Plan Addendum #IA-03-04, IHSS Group 700-3, Rocky Flats Environmental Technology Site, Golden, Colorado, May.

DOE, 2003b, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation Modification 1, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

DOE, 2003c, RFETS Automated Surface-Water Monitoring Report, Water Year 2002, Rocky Flats Environmental Technology Site, Golden, Colorado, November.

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K-H, 2002a, General Guidelines for Data Verification and Validation, DA-GR01-v2, December.

K-H, 2002b, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2.

K-H, 2002c, V&V Guidelines for Volatile Organics, DA-SS01-v2.

K-H, 2002d, V&V Guidelines for Semivolatile Organics, DA-SS02-v3.

K-H, 2002e, V&V Guidelines for Metals, DA-SS05-v1.

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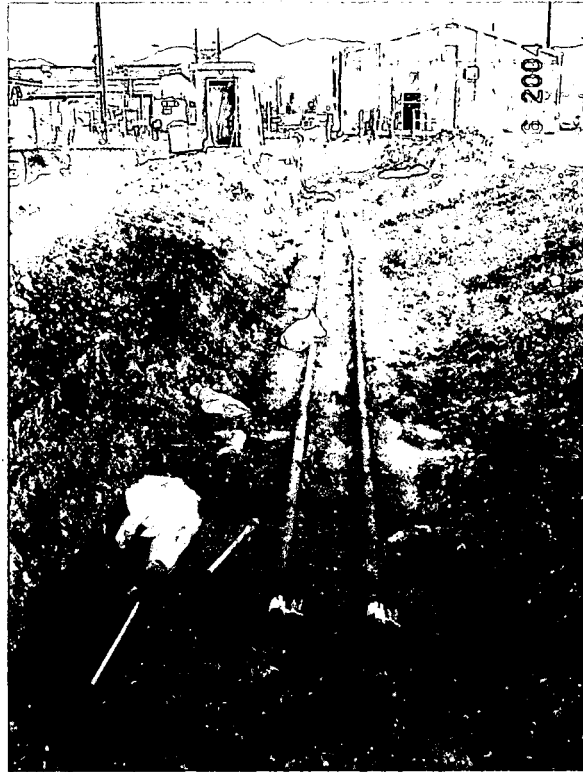
**APPENDIX A  
PROJECT PHOTOGRAPHS**

Line P-30W bagged, tapped and cut.



Process lines exposed north of B730.





Lines P-37WN and P-41WN exposed.



Lines P-37WN and P-41WN removed.

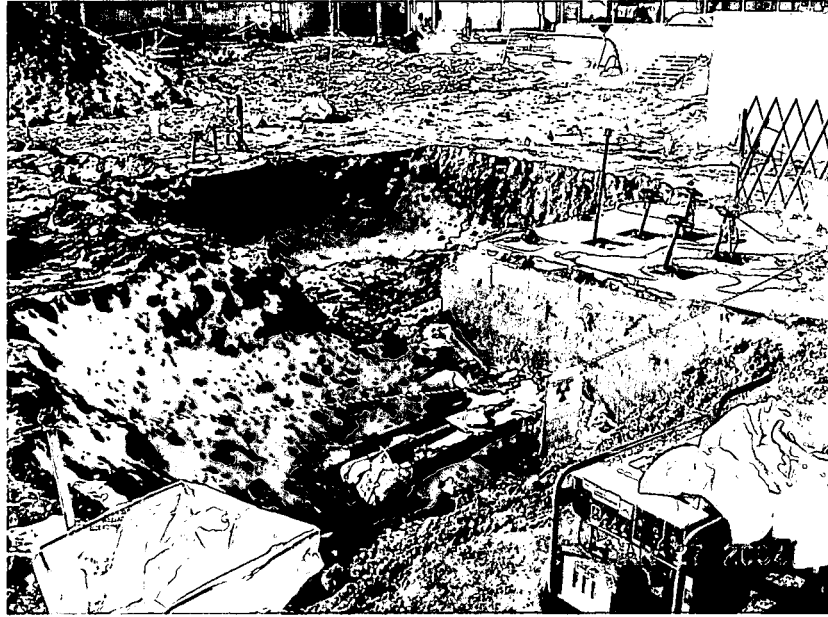




Excavation at location of former Tank 207 and Sampling Location CH47-001, NE view.



Excavation at location of former Tank 207 and Sampling Location CH47-001, NW view.



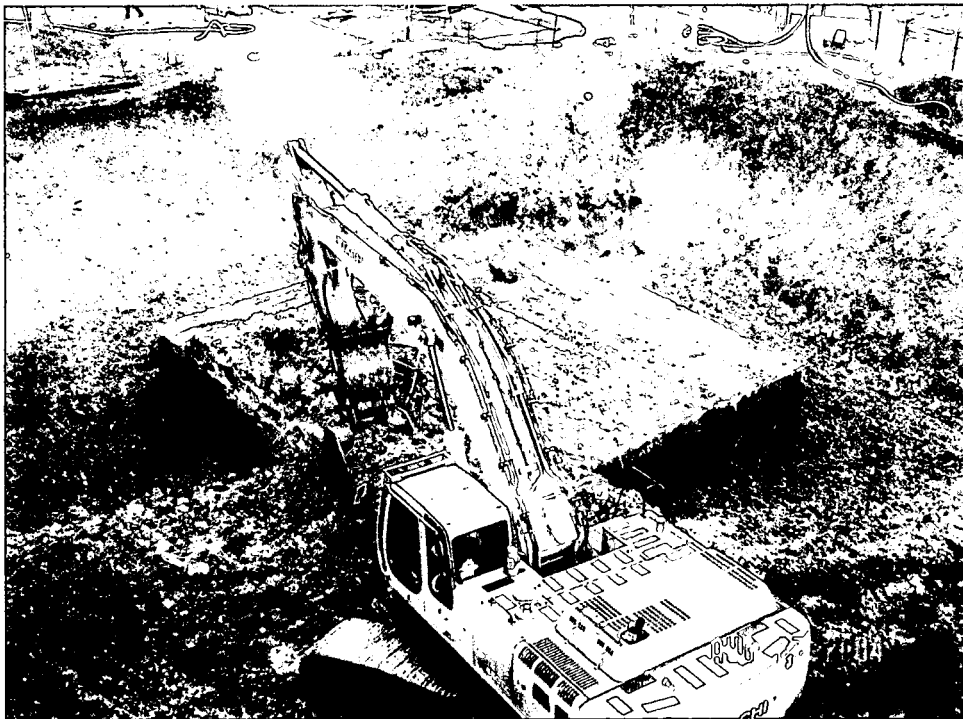
Excavation at location of former Tank 207 and Sampling Location CH47-001, SW view.



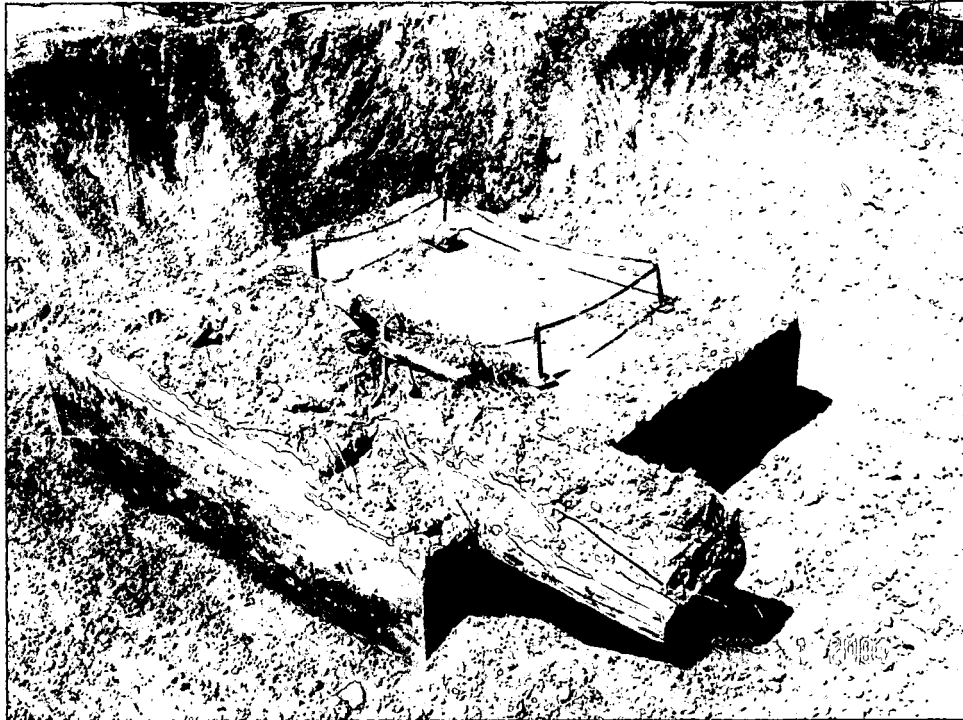
Start of excavation to remove fuel-oil line and oil-stained soil at NW corner of UBC 701.



Excavation to remove fuel-oil line and oil-stained soil at NW corner of UBC 701, showing 3 out of the 5 confirmation sampling locations.



IHSS 118.1 excavation at 12 ft bgs showing Building 730.



IHSS 118.1 excavation at 16 ft bgs showing Building 730.



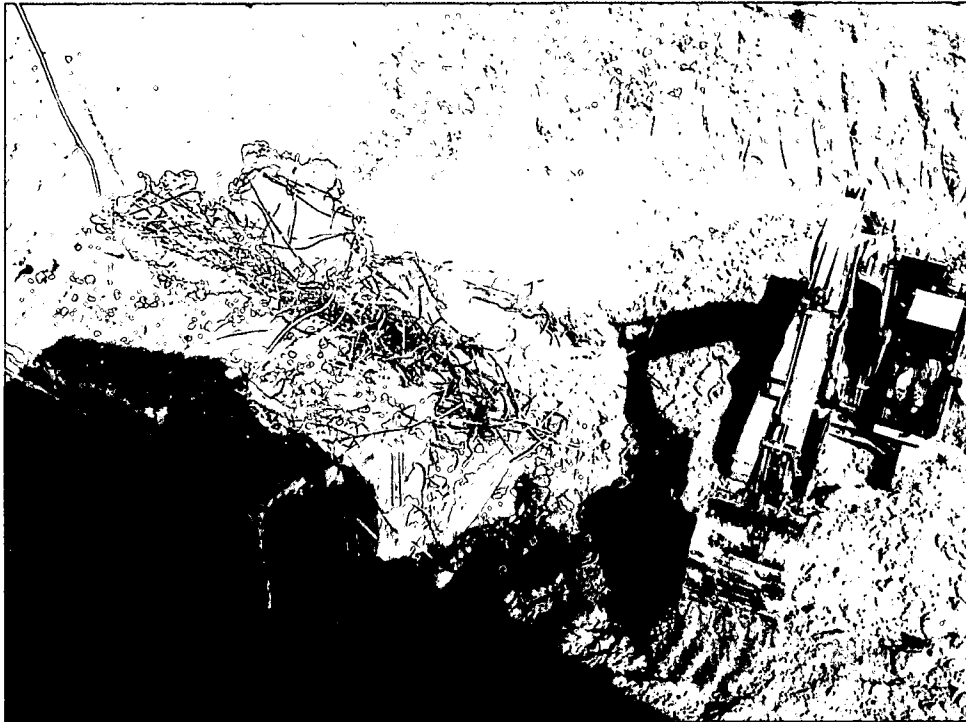
Soil being removed from western side of IHSS 118.1 excavation to improve access.



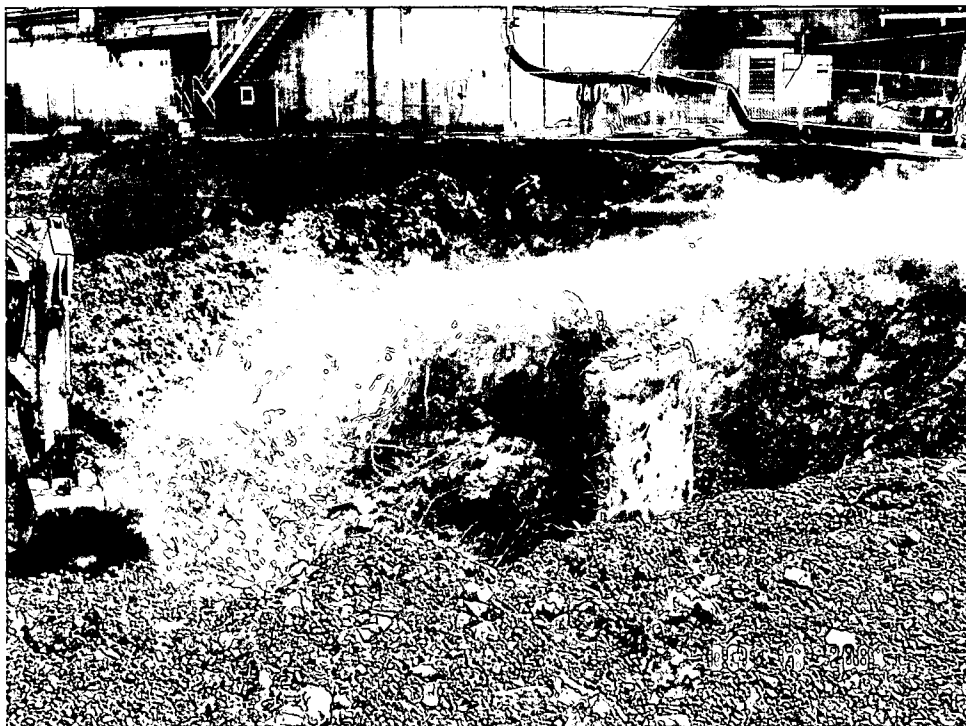
IHSS 118.1 excavation complete except for southeastern corner.



Building 730 after first day of demolition activities.



Ramp into IHSS 118.1 excavation being regraded.



Northern wall of the western south tank within Building 730 being demolished.



Demolition of Building 730 south tanks.



Exposed Building 730 concrete slab.



Demolished Building 730 slab being loaded into waste containers.



Second of three HRC® applications in progress within the IHSS 118.1 excavation.



**APPENDIX B  
PROJECT CORRESPONDENCE**

## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

**Date/Time:** 3-1-05

**Site Contact(s):** Annette Primrose      Norma Castaneda  
**Phone:** 966-4385      966-4226

**Regulatory Contact:** Elizabeth Pottorff  
**Phone:** 303 692-3429

**Agency:** CDPHE

**Purpose of Contact:** Spill remediation

### Discussion

About 100 gallons of dust suppression and groundwater from the IHSS 118.1/B730 excavation spilled onto the ground at the Building 891 treatment facility while being transferred into the facility for treatment. The water contained carbon tetrachloride.

The soil was sampled for radionuclides and VOCs. Uranium-235 and -238 were slightly above background at 0.17 pCi/g and 3.46 pCi/g respectively. Background activities are 0.12 and 1.5 pCi/g respectively. Carbon tetrachloride was present at 103 ug/kg along with tetrachloroethene at 27 ug/kg and small concentrations of other VOCs under 5 ug/kg. This soil will be removed, packaged and sent offsite as waste. A confirmation sample will be collected to verify that the spill was appropriately remediated. This removal is being conducted under the ER RSOP for IHSS Group 700-3 because that is where the water originated.

**Contact Record Prepared By:** Annette Primrose

### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
G. Kleeman, USEPA  
D. Kruchek, CDPHE

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
M. Roy, DOE-RFPO  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS

### Additional Distribution:

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138/

J. Legare, DOE-RFPO

C. Zahm, K-H Legal

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## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

**Date/Time:** November 11, 2004 (corrected)  
**Site Contact(s):** Norma Castaneda      Annette Primrose  
**Phone:** 303 966-4226      303 966-4385

**Regulatory Contact:** Harlen Ainscough  
**Phone:** 303 692-3337  
**Agency:** CDPHE

**Purpose of Contact:** Sample location changes for the 700-3 (B776) SAP

### **Discussion**

There are two sample locations to the north of B776 that will need to be relocated because of major obstructions. These are:

- CF46-024      Statistical sample that will be relocated 3 feet east due to a large fixed piece of equipment (large fan) and will require concrete coring to penetrate the existing slab.
- CF46-025      Biased sample for the french drain (PAC 1100) that, as currently located, is inside B776. This will be relocated 5 feet north along the french drain to the outside of B776.

**Contact Record Prepared by:** Annette Primrose

### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
L. Kimmel, USEPA  
D. Kruchek, CDPHE  
J. Legare, DOE-RFPO

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

### Additional Distribution:

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## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

**Date/Time:** November 1, 2004/0830

**Site Contact(s):** Annette Primrose      Norma Castaneda  
**Phone:** 303 966-4385      303 966-4226  
K-H RISS      DOE

**Regulatory Contact:** Elizabeth Pottorff      David Kruchek  
**Phone:** 303 692-3429      303 692-3328  
**Agency:** CDPHE      CDPHE

**Purpose of Contact:** Agreement to leave the remaining B730 slab in-place

### **Discussion**

The Building 730 slab will be approximately 20 feet below final grade at Site closure. The slab under the southern tanks was removed and the remaining slab is approximately 23 feet long (north-south) and 35 feet wide (east-west). Radiological surveys of the slab were performed after demolition was completed. Based on these surveys, the remaining radioactivity for the slab was calculated to be 0.04 pCi/g.

Based on the results of the radiological surveys and because the majority of the carbon tetrachloride has been removed, this portion of the slab will be left in place.

**Contact Record Prepared By:** Annette Primrose

### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
D. Kruchek, CDPHE  
J. Legare, DOE-RFPO

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

### Additional Distribution:

Sam Garcia, USEPA  
Beth Loehrke, K-H RISS  
Victoria Wren, K-H RISS

## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

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**Date/Time:** October 27, 2004/1000

**Site Contact(s):** Annette Primrose      Norma Castaneda  
**Phone:** 303 966-4385      303 966-4226  
K-H RISS      DOE

**Regulatory Contact:** Elizabeth Pottorff  
**Phone:** 303 692-3429  
**Agency:** CDPHE

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**Purpose of Contact:** Excavation bottom samples

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### Discussion

The disturbed soil at the south side of the excavation will be removed and disposed as waste, including the soil at the sump. Four samples will be collected from the excavation bottom from the A interval only; one sample from each of the four sides. These samples will be used to indicate the residual contaminant concentrations.

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**Contact Record Prepared By:** Annette Primrose

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### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
D. Kruchek, CDPHE  
J. Legare, DOE-RFPO

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

### Additional Distribution:

Sam Garcia, USEPA  
Beth Loehrke, K-H RISS  
Victoria Wren, K-H RISS

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## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

**Date/Time:** October 27, 2004/1000

**Site Contact(s):** Annette Primrose      Norma Castaneda  
**Phone:** 303 966-4385      303 966-4226  
K-H RISS      DOE

**Regulatory Contact:** Elizabeth Pottorff  
**Phone:** 303 692-3429  
**Agency:** CDPHE

**Purpose of Contact:** Excavation backfill

### **Discussion**

Soil from the upper 16 feet of the excavation will be used for backfill of the excavation.

In addition, the remaining soil from waste loadout will also be used as backfill. This soil was previously tested and carbon tetrachloride concentrations are less than 50 ppb.

**Contact Record Prepared By:** Annette Primrose

### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
D. Kruchek, CDPHE  
J. Legare, DOE-RFPO

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

### Additional Distribution:

Sam Garcia, USEPA  
Beth Loehrke, K-H RISS  
Victoria Wren, K-H RISS

## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

**Date/Time:** October 5, 2004/1200

**Site Contact(s):** Annette Primrose      Norma Castaneda  
**Phone:** 303 966-4385      303 966-4226  
K-H RISS      DOE

**Regulatory Contact:** Elizabeth Pottorff  
**Phone:** 303 692-3429  
**Agency:** CDPHE

**Purpose of Contact:** Remediation of B701 area oil stained soils

### Discussion

During removal of the B701 foundation, subsurface piping containing oil was discovered. Remediation of the oil stained soils and associated piping began on October 1 and was completed today. Confirmation samples were collected from the excavation floor, side walls and end walls. These were all screened using the onsite total petroleum hydrocarbon (TPH) screening methodology and all sample results were below 2,000 ppm. The action level for TPH is 5,000 ppm.

Because the field screening results are below action levels, the samples were submitted for offsite analyses. It was agreed that the excavation will be backfilled based on the field screen data.

**Contact Record Prepared By:** Annette Primrose

### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
D. Kruchek, CDPHE  
J. Legare, DOE-RFPO

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

### Additional Distribution:

Sam Garcia, USEPA  
Beth Loehrke, K-H RISS  
Victoria Wren, K-H RISS



## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

**Date/Time:** August 18, 2004/8:00 am

**Site Contact(s):** Annette Primrose

**Regulatory Contact:** Elizabeth Pottorff

**Phone:** 303 692-3429

**Agency:** CDPHE

**Purpose of Contact:** Backfill of IHSS 118.1 project using excavated petroleum stained soil

### **Discussion**

Petroleum stained soil was encountered at approximately 9 feet below previous grade on the east side of B730 during excavation activities at IHSS 118.1. The stained soil appeared to be the result of an historic diesel fuel spill at this location and the material was highly weathered. The soil will be sampled for VOCs (for BTEX) and TPH to verify that the staining is a result of petroleum hydrocarbons. If the results indicate that this is true, and the results are below the 5,000 ppm action level, this soil will be stockpiled and used to backfill the excavation.

Use as backfill is acceptable because historic fuel spills are dispositioned as No Further Accelerated Action, and because there is evidence that petroleum hydrocarbons assist with degradation of carbon tetrachloride.

**Contact Record Prepared By:** Annette Primrose

### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
G. Kleeman, USEPA  
D. Kruchek, CDPHE  
J. Legare, DOE-RFPO

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

### Additional Distribution:

Beth Loehrke, K-H RISS  
Dave Chojnacki, K-H RISS  
Sherry Lopez, K-H RISS  
Sam Garcia, USEPA  
Vicki Wren, K-H RISS  
Shaun Knapp, K-H RISS  
L. Gregory-Frost, K-H RISS

## ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

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**Date/Time:** September 15, 2004 9:00 am

**Site Contact(s):** Norma Castaneda      Annette Primrose  
303 966-4226      303 966-4385

**Regulatory Contact:** David Kruchek  
**Phone:** 303 692-3328  
**Agency:** CDPHE

**Purpose of Contact:** Backfill of 700-3/B701 hot spot

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### Discussion

Contaminated soil was removed from the area around CF46-019, where soils above action levels were identified. The excavation is approximately 6 feet long (east/west), 8 feet wide (north/south) and 3 feet deep. Field instrumentation did not identify any areas with elevated activity. Samples were collected from all four sides and the base of the excavation and sent to the field screening lab. All results were well below action levels. All samples were sent off-site for confirmation alpha spec analysis. Based on these results, it was agreed that the excavation could be backfilled.

The B701 area is raised above the surrounding grade and will require regrading. Therefore, the excavation will be backfilled with the soil in the immediate area.

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**Contact Record Prepared By:** Annette Primrose

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### Required Distribution:

M. Aguilar, USEPA  
H. Ainscough, CDPHE  
S. Bell, DOE-RFPO  
J. Berardini, K-H  
B. Birk, DOE-RFPO  
L. Brooks, K-H ESS  
L. Butler, K-H RISS  
G. Carnival, K-H RISS  
N. Castaneda, DOE-RFPO  
C. Deck, K-H Legal  
N. Demos, SSOC  
S. Gunderson, CDPHE  
M. Keating, K-H RISS  
G. Kleeman, USEPA  
D. Kruchek, CDPHE  
J. Legare, DOE-RFPO

D. Mayo, K-H RISS  
J. Mead, K-H ESS  
S. Nesta, K-H RISS  
L. Norland, K-H RISS  
K. North, K-H ESS  
E. Pottorff, CDPHE  
A. Primrose, K-H RISS  
R. Schassburger, DOE-RFPO  
S. Serreze, K-H RISS  
D. Shelton, K-H ESS  
C. Spreng, CDPHE  
S. Surovchak, DOE-RFPO  
J. Walstrom, K-H RISS  
K. Wiemelt, K-H RISS  
C. Zahm, K-H Legal

### Additional Distribution:

Mike Bemski, K-H RISS  
Beth Floehrke, K-H RISS  
Sherry Lopez, K-H RISS  
Sam Garcia, USEPA  
Joe Hebert, K-H RISS  
Dave Chojnacki, K-H RISS  
Vicki Wren, K-H RISS  
Dyan Foss, KH

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**ENCLOSURE**

**COMPACT DISC OF  
ACCELERATED ACTION DATA  
(COMPLETE DATA SET)**

Figure 14  
IHSS Group 700-3  
Residual Soil Concentrations  
West

KEY

- Sampling location with concentrations less than WRW ALs and greater than backgrounds or RLs/MDLs

- UBC
- IHSS
- PAC
- Asphalt
- Demolished building
- Standing building



Scale = 1: 1100

150 0 150 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by:

Prepared for:

Date: 03.21.05



File: W:\Projects\FY2004\700-3\Characterization\700-3\_char\_dr\_rev1.apr

IA-A-002638





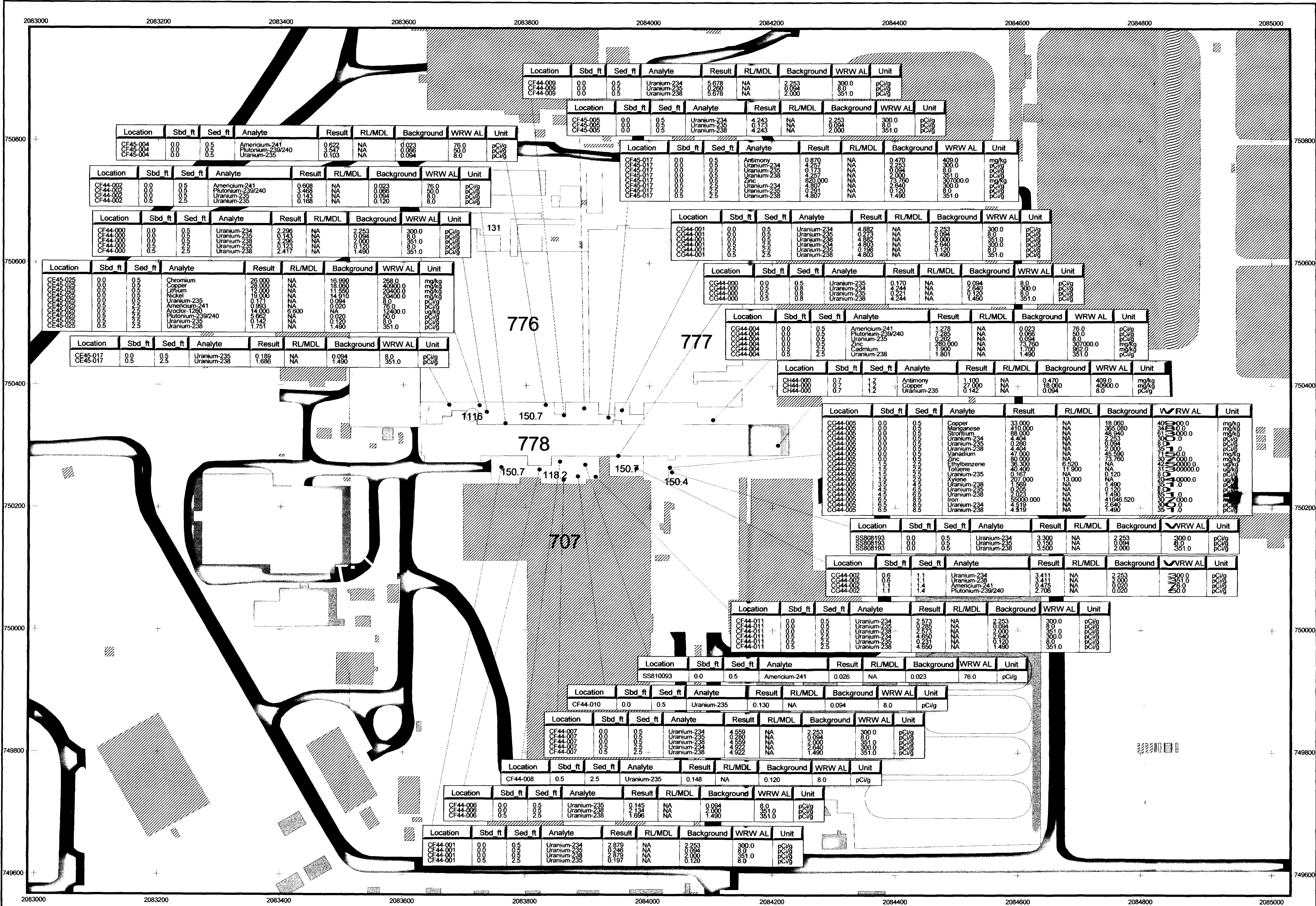


Figure 13  
IHSS Group 700-3  
Residual Soil Concentrations  
South

**KEY**

- Sampling location with concentrations less than WRW ALs and greater than backgrounds or RLs/MDLs



▢ UBC  
▢ IHSS  
▢ PAC  
▢ Asphalt  
▨ Demolished building  
▤ Standing building

N

Scale = 1: 1000  
100 0 100 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

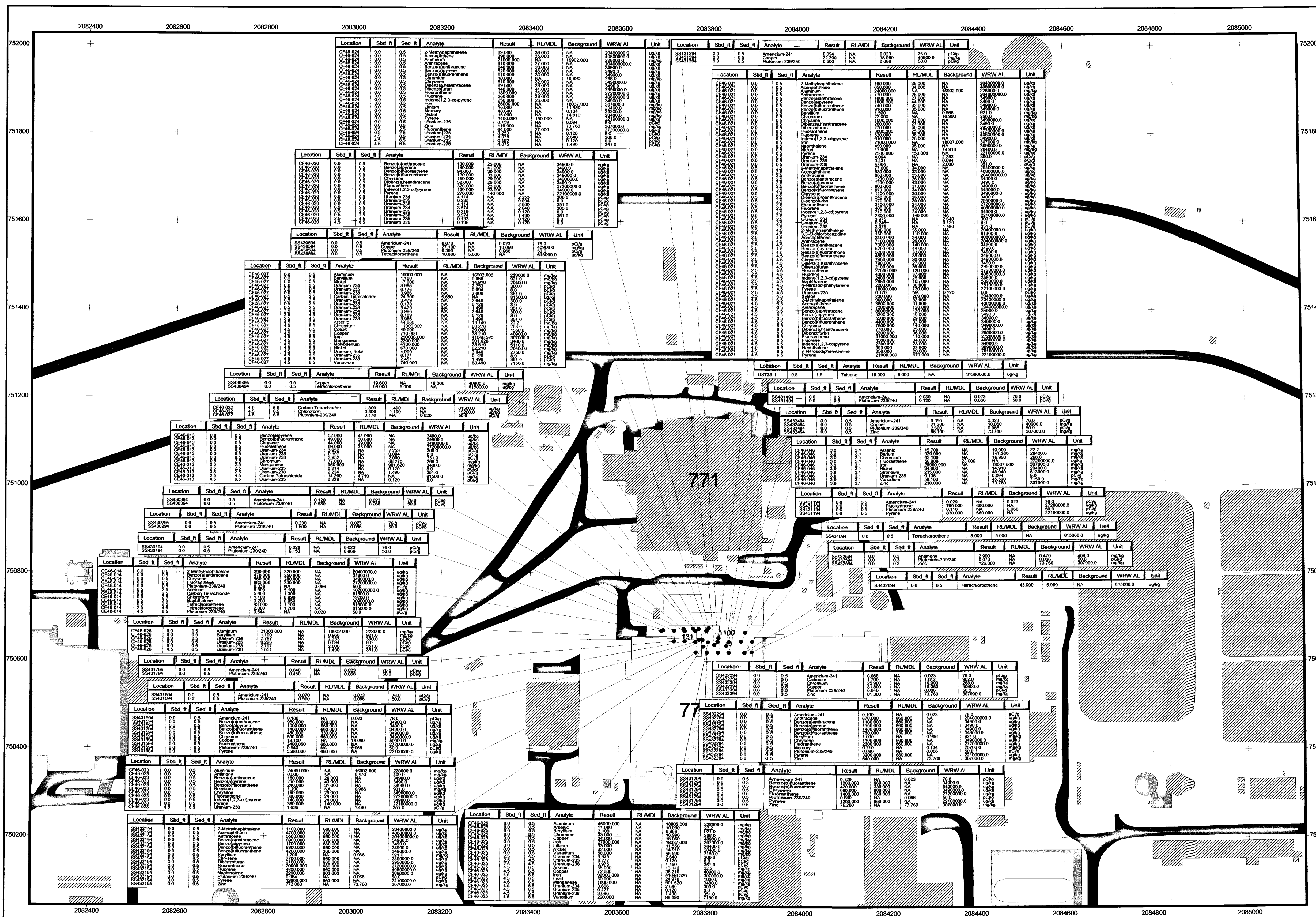
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by:   
Prepared for: 

Date: 03.21.05

File: W:\Projects\fy2004\700-3\Characterization\700-3\_char\_dr\_rev1.apr





**Figure 12**  
**IHSS Group 700-3**  
**Residual Soil Concentrations**  
**Lower North**

**KEY**

- Sampling location with concentration greater than WRW AL
- Sampling location with concentrations less than WRW ALs and greater than backgrounds or RLs/MDLs

UBC  
IHSS  
PAC  
Asphalt  
Demolished building  
Standing building

N

Scale = 1: 1400

150 0 150 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Date: 03.21.05

Prepared by: RADMS

Prepared for: KAISER HILL COMPANY

File: W:\Projects\Fy2004\700-3\Characterization\700-3\_char\_dr\_rev1.apr

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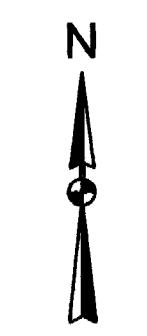


Figure 11  
IHSS Group 700-3  
Residual Soil Concentrations  
Upper North

KEY

- Sampling location with concentrations less than WRW ALs and greater than backgrounds or RLs/MDLs

- UBC
- IHSS
- PAC
- Asphalt
- Demolished building
- Standing building



Scale = 1: 950

100 0 100 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Date: 03.21.05

Prepared by:



Prepared for:



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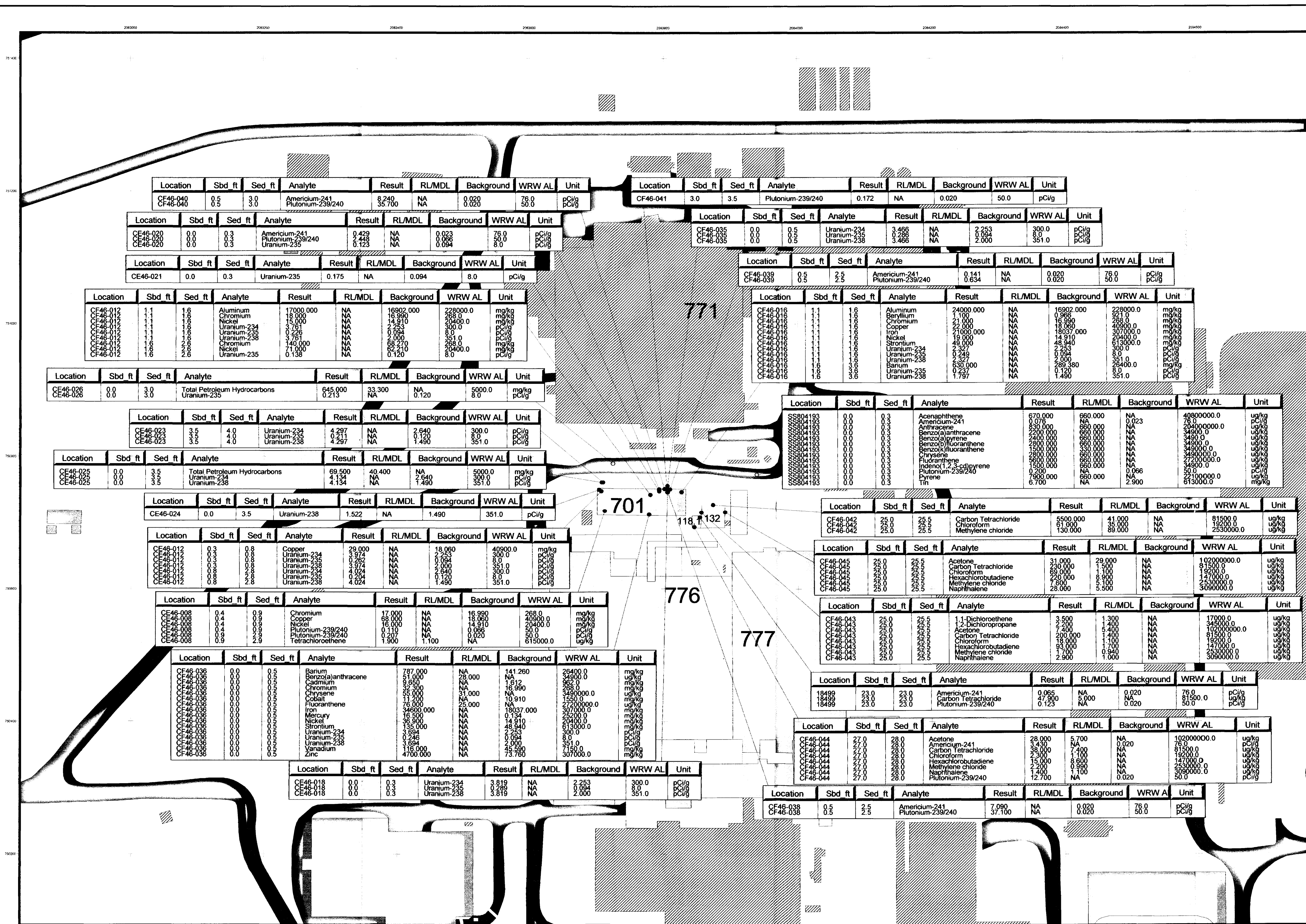




Figure 10  
IHSS Group 700-3  
Residual Soil Concentrations  
East/Northeast

## KEY

- Sampling location with concentrations less than WRW ALs and greater than backgrounds or RLs/MDLs

UBC

IHSS

PAC

 Asphalt Demolished building Standing building

 OPWL remaining



Scale = 1: 1400

150                      0                      150 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by:

Prepared for:

Date: 03.21.05



File: W:\Projects\Fy2004\700-3\Characterization\  
700-3 char dr rev1.apr

LA-A-002638



IA-A-002638



### IHSS Group 700-3 Characterization Results Greater Than Background Plus Two Standard Deviations or RLS, UBC 701 and IHSS 144(N)

### KEY

- Sampling location with concentration greater than WRW AL
- Sampling location with concentrations less than WRW ALs and greater than backgrounds/RLs

UBC

IHSS

PAC

 Asphalt

 Demolished building

☐ Standing building

OPWL



Scale = 1: 1400

150 0 150 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by:

Date: 03.21.05



Prepared for:



**KAISER-HIL**  
COMPANY

File: W:\Projects\Fy2004\700-3\Characterization\700-3 char dr rev1.apr

FA-A-002638



Figure 6  
IHSS Group 700-3 Characterization  
Results Greater Than Background  
Means Plus Two Standard Deviations  
or RLs, IHSSs 150.4 and 150.7,  
and OPWL

## KEY

- Sampling location with concentration greater than WRW AL
- Sampling location with concentrations less than WRW ALs and greater than backgrounds/RLs
- Sampling location with concentrations less than WRW ALs and less than backgrounds/RLs

OPWL

UBC

IHSS

PAC

 Asphalt Demolished building **Standing building**

Scale = 1: 1400  
150 0 150 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by: \_\_\_\_\_ Date: 03.21.05

Prepared for: \_\_\_\_\_

**RADMS**


  
**KAISER • HILL**  
COMPANY



Figure 5  
IHSS Group 700-3 Characterization  
Results Greater Than Background  
Means Plus Two Standard Deviations  
or RLs, IHSS 150.2(S)

**KEY**

- Sampling location with concentration greater than WRW AL
- Sampling location with concentrations less than WRW ALs and greater than backgrounds/RLs
- Sampling location with concentrations less than WRW ALs and less than backgrounds/RLs

UBC  
IHSS  
PAC  
Asphalt  
Demolished building  
Standing building

N

Scale = 1: 1100

150 0 150 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

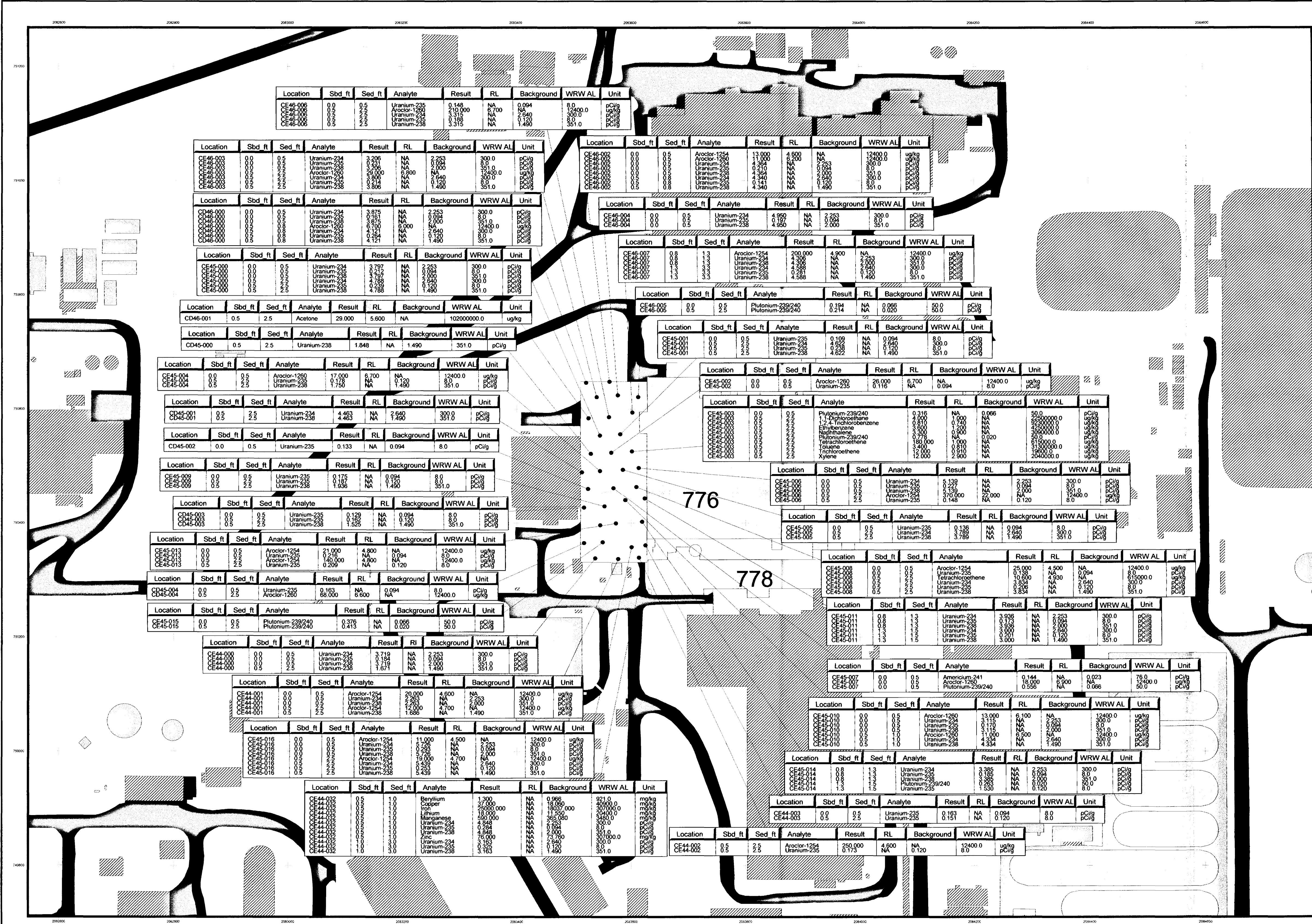
Date: 03.21.05

Prepared by: RADMS

Prepared for: KAISER HILL COMPANY

File: W:\Projects\Fy2004\700-3\Characterization\700-3\_char\_rev1.apr

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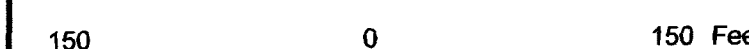
IA-A-002638



## KEY

-  UBC  
 IHSS  
 PAC  
 Asphalt  
 Demolished building  
 Standing building

Scale = 1: 1150



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

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Prepared by:  Date: 03.21.05

Prepared for:

**KAISER•HILL**  
COMPANY

File: W:\Projects\Fy2004\700-3\Characterization\700-3 char dr rev1.apr

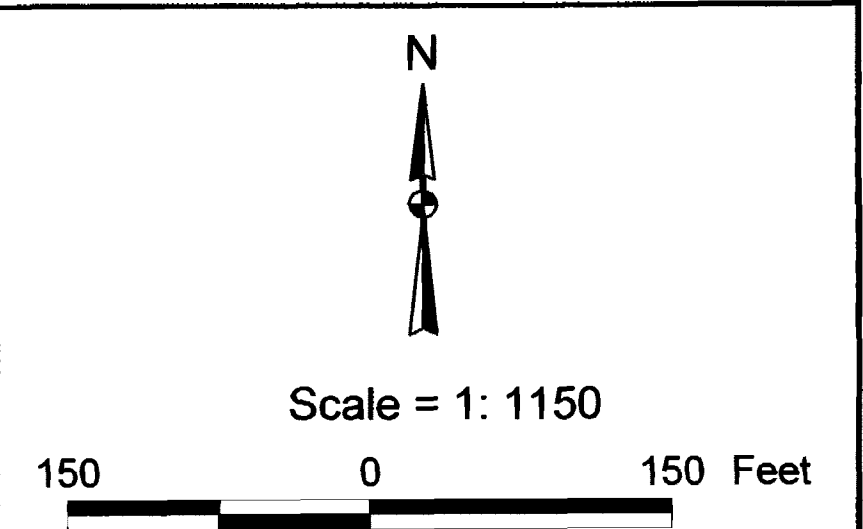


Figure 2  
IHSS Group 700-3  
Pre-Accelerated Action Results  
Greater than Background Means  
Plus Two Standard Deviations or MDLs  
Northern Samples

KEY

- Sampling location with concentration greater than WRW AL
- Sampling location with concentrations less than WRW ALs and greater than backgrounds/MDLs

- UBC
- IHSS
- PAC
- Asphalt
- Demolished building
- Standing building
- Tanks



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

U.S. Department of Energy  
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Date: 03.21.05

Prepared by: RADMS

Prepared for: KAISER-HILL COMPANY

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